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Main image: **Starfighters Aerospace TF-104G N992SF in flight.** Luigino Caliaro.

Inset (top): **Buffalo Airways C-46 C-FAVO.** Tony Storck. Inset (middle): **Pan Am DC-10 N62NA landing at Las Vegas.** R Verschuur - Guy Van Herbruggen Collection. Inset (bottom): **VX-30 S-3B Viking 159746.** Scott Dworkin

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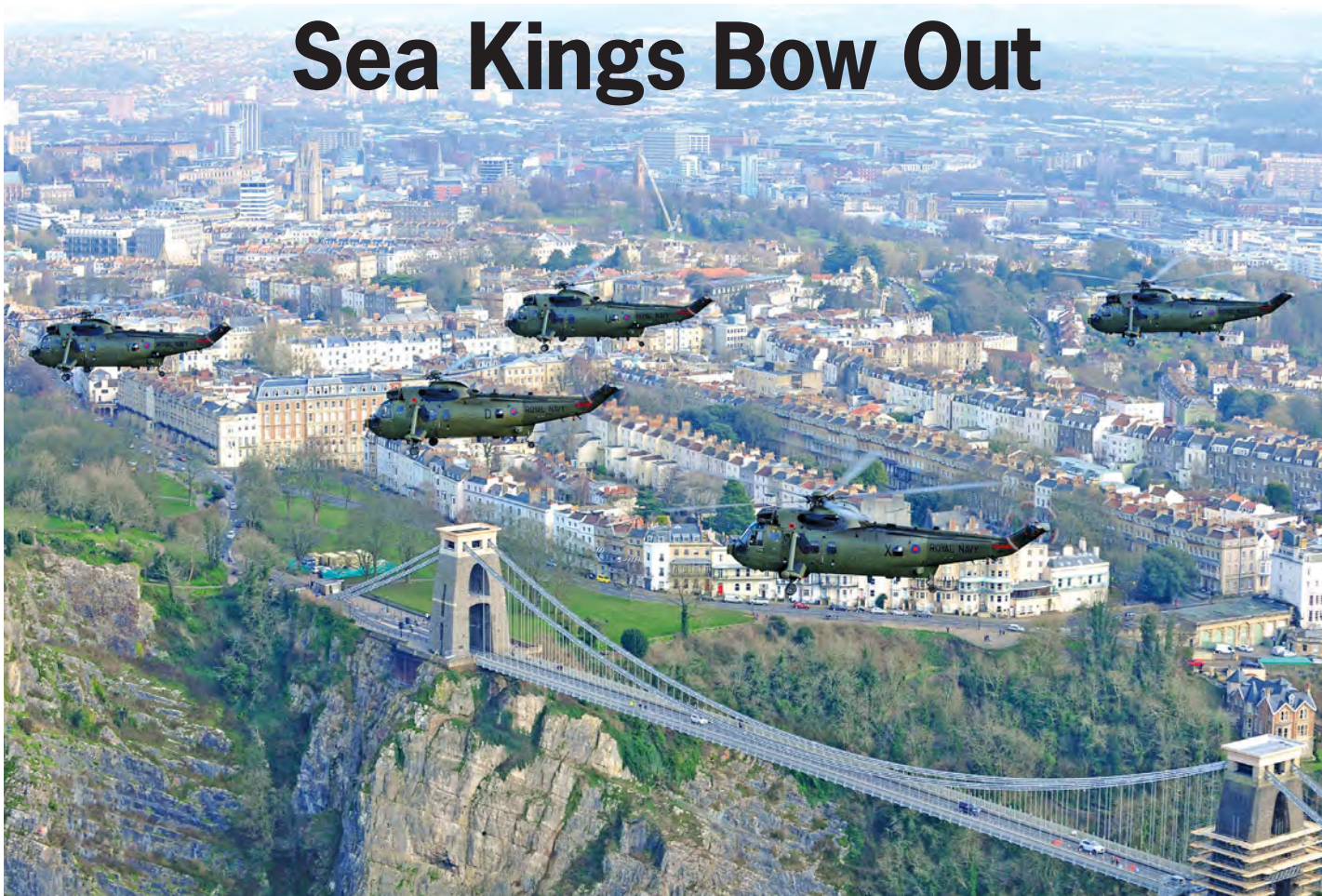


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# Sea Kings Bow Out



RNAS Yeovilton's famous green Sea King HC4 *Junglies* were retired from service on March 24. The helicopter has enjoyed an illustrious career, transporting Royal Marines for more than 36 years and covering every major conflict from the Falklands to Afghanistan.

Three days prior to the retirement, five HC4s from 848 Naval Air Squadron (NAS) launched from RNAS Yeovilton, Somerset, to perform a farewell formation flight around southern and southwestern England overflying locations the type has been most

**Five Sea King HC4s fly over the Clifton Suspension Bridge during 848 NAS's farewell flight on March 21.** Crown Copyright/LPhoto Dan Rosenbaum

closely associated with.

Nearly three months after its final search and rescue (SAR) mission, 771 Naval Air Squadron (which had also flown the Sea King) was decommissioned at RNAS Culdrose on March 23. The squadron stood down from SAR duties on New Year's Day, when that role was taken on by Bristol Helicopters.

Military SAR operations in the Falkland Islands have also come to an end. A sunset ceremony was held at Mount Pleasant Airfield on March 31, as the RAF's Sea King-equipped 1564 Flt handed over to civilian contractor AAR Airlift. This marks the end of RAF SAR operations with the Sea King.

The Royal Navy's ASaC7 variant are the last Sea Kings in UK military service. These are scheduled to remain operational until the third quarter of 2018.



**Sea King HAR3 XZ593 takes part in 1564 Flt's sunset ceremony at Mount Pleasant Airfield on March 31.** Greg Cooke

## Kuwait Commits to Typhoon

Kuwait has signed a contract for 22 single-seat and six two-seat Eurofighter Typhoons.

The deal is for Tranche 3 standard aircraft, which will be equipped with the E-Scan radar.

The deal was originally announced on

September 11, after the State of Kuwait reached an agreement with the Italian Government. The signing of the contract was confirmed on April 5.

The CEO of Eurofighter, Volker Paltzo, said: "The confirmation of this order is further testament of the growing interest

in the Eurofighter Typhoon in the Gulf Region. It will enable Kuwait to benefit from the critical mass being developed in the Gulf and the many advantages that it brings to an air force in terms of interoperability, training and in-service support."



# LOI for Lockheed Martin Airship



UK-based Straightline Aviation (SLA) has signed a letter of intent (LOI) to purchase up to 12 Lockheed Martin Hybrid Airships.

The deal is valued at approximately \$480m and SLA is working with Hybrid Enterprises, Lockheed Martin's Hybrid Airship reseller, to finalise the purchase agreement.

"We are delighted to be first in line with this magnificent aircraft that is going to

**An artist's impression of a Straightline Aviation Lockheed Martin Hybrid Airship.**  
Lockheed Martin

dramatically change the way cargo is moved around the world," said Mike Kendrick, SLA co-founder and CEO. "The clear-cut economic and environmental advantages of these Hybrids are attracting vast amounts of attention from a wide range of potential

end-users."

The Hybrid Airship uses a unique, tri-lobed shape and air cushion landing system, and can transport cargo and passengers to and from extremely remote locations. The airship requires little or no fixed ground infrastructure, and the manufacturer claims it burns significantly less fuel than conventional aircraft.

## First US-built Airbus Flies



European manufacturer Airbus successfully flew the first aircraft built at its US manufacturing facility on March 21.

The A321, destined for JetBlue, lifted off from the Mobile Aeroplex at Brookley, in Alabama at 0936hrs, landing back at the site at 1302hrs. Test Pilots Mark McCullins and Bruce Macdonald had the honour of performing the first flight and were accompanied by Flight Test Engineers Thierry Cros and Nick Picconi, and Ground Test Engineers/Cabin Specialists Alexander Gentzsch and Mike Johns. Tests were performed on systems, engines and structure performance during the 3hr 26min sortie.

"We've come to an exciting milestone in the production of any aircraft, but this one

**JetBlue Airbus A321 F-WZMA (c/n 6512) in the final stages of its maiden flight from Mobile Aeroplex at Brookley in Alabama.** Airbus

is particularly special," said Daryl Taylor, Vice President and General Manager of the Airbus US Manufacturing Facility. "The Mobile team has worked hard, and I'm proud that their skill and talent have brought us to this moment. Together we are fulfilling the promise we made to the city of Mobile, the state of Alabama, and the Gulf Coast region – we're creating a new centre of commercial aircraft production in the US. This is just the first of many aircraft to come."

Following the maiden flight, the aircraft will go through several more weeks in final production before being delivered to JetBlue.

## EDITORIAL

This month's issue includes the first of our Viewing Area Guides from airports around the world. This irregular series will cover all the things you need to know, such as opening times, photographic advice, any cost for entry and what can be seen. We will cover the official viewing areas, ranging from those on the airfield perimeter that can be quite basic, to terraces with amenities. And where an airport has more than one such facility, we'll cover them all in the same feature. In addition to photos, we aim to include videos taken from viewing areas in the digital version of our magazine. For example, this month's guide on the viewing terrace at Salzburg Airport includes footage that gives you a full panorama. This new feature comes in addition to our popular Room with a View articles.

We aim to produce a magazine that is an enjoyable and enlightening read but also provide useful information so that readers can get more out of the hobby.

On another matter we are always looking to expand our pool of contributors, so if you are in the aerospace industry, a professional writer or enthusiast and have an idea for an article we'd be delighted to hear from you.

Enjoy the issue.

**Dino Carrara**  
Editor  
[dino.carrara@keypublishing.com](mailto:dino.carrara@keypublishing.com)





# New Look for Rossiya



Russian carrier Rossiya has unveiled a new livery on Boeing 747-446 EI-XLE (c/n 26362). The jet is one of several being taken on by Rossiya following the demise of Transaero. The aircraft was rolled out at Dublin on March 30. AirTeamImages.com/Paul Quinn

## United Outlines Jumbo Retirement Plans

United Airlines is accelerating the retirement of its Boeing 747-400s with the entire fleet to be phased out by the end of 2018. To fill the void left by the jumbo's retirement, the carrier has converted existing 787 orders (scheduled for delivery from 2020) into four 777-300ERs and five 787-9s with deliveries beginning in 2017.

"Retiring the 747 fleet and replacing those aircraft with more customer-

pleasing, current-generation aircraft creates a more reliable and efficient fleet that provides a better overall experience for our customers travelling on long-haul flights," said Gerry Laderman, United's Senior Vice President of Finance and Acting Chief Financial Officer.

United's short-haul fleet continues to get a makeover too with the announcement of a purchase of a further 25 737-700s in

addition to the previously declared order for 40. Delivery of these will start at the end of 2017 and enable United to reduce the size of its 50-seat regional fleet.

The airline currently has firm orders for 35 Airbus A350-1000s, 153 aircraft from the Boeing 737 family, ten Boeing 777-300ERs and 27 Boeing 787s. It also has firm orders for ten Embraer E175s that United Express partners will operate.

## Mozambique Debris Linked to MH370

Two pieces of debris that were washed up on Mozambique are "almost certainly" from the missing Malaysia Airlines (MAS) flight MH370, according to the Ministry of Transport Malaysia.

The debris was examined at the Geoscience Australia and Australian Transport Safety Bureau facilities in Canberra. In a statement, Malaysia's Minister of Transport, Dato' Sri Liow Tiong Lai, said: "Both parts are consistent with panels from an MAS Boeing 777 aircraft, and almost certainly are from MH370. The location where both pieces were discovered in Mozambique are consistent with the drift modelling performed by the Australian Commonwealth Scientific and Industrial Research Organisation (CSIRO)."

## Asian Debut for neo



IndiGo has taken delivery of its first Airbus A320-271N, VT-ITC (c/n 6799). Airbus

Indian low-cost carrier IndiGo became the second operator of the Airbus A320neo when it took delivery of its first example on March 10.

The airline, India's largest by passenger numbers, ordered 180 A320neos in 2011 and a further 250 last year.

Aditya Ghosh, IndiGo President, said: "The A320neo aircraft will enable us to continue to

offer affordable air transportation and a new flying experience for our customers. The fuel-efficient aircraft will be part of a new phase of our growth and will enable us to offer more regional and international destinations at the best price."

The first A320-271N, VT-ITC (c/n 6799), was joined by a second example, VT-ITD (c/n 6819) five days later.

## Brussels Airport Reopens

Flights resumed from Brussels Airport on April 3, 12 days after the terrorist attacks that killed 16 people there.

Brussels Airlines flew three 'symbolic' flights, to Faro, Turin and Athens, following the reopening. Operations will gradually increase day-by-day and the airport hopes

to reach maximum capacity before the start of the summer holiday season at the end of June/beginning of July.

Additional security measures have been implemented at the entrance to the airport area and at the temporary check-in zone that has been built. Only people with

boarding passes are currently allowed into the terminal area.

Demolition work to remove the damaged parts of the departure hall has begun and reconstruction will start shortly. No timeframe has been given for this work to be completed.



# Garuda Arrives at Heathrow

Terminal 3 was awash with colour and the strains of traditional Indonesian music to celebrate the arrival of Garuda Indonesia's inaugural Heathrow service on March 31. The carrier has switched its London operation from Gatwick and increased frequency to five times per week. The outbound flight currently routes via Singapore because the Boeing 777-300ER's maximum take-off weight exceeds the strength of the runways at Jakarta's Soekarno-Hatta International Airport. The service from London is non-stop. Garuda's flights to and from Gatwick had routed via Amsterdam.

Jubi Prasetyo, Garuda Indonesia's General Manager UK & Ireland, said: "Making the move to Heathrow Airport has been an ambition of ours since joining SkyTeam in March 2014. Heathrow's pivotal role in servicing the alliance's 1,052 destinations makes it an ideal departure airport for our passengers. Flying non-stop direct to Jakarta means we will truly be the most efficient way to reach Indonesia from the UK."

The airline plans to relocate to Terminal 4 in the future, to join its SkyTeam partners.



Boeing 777-3U3ER PK-GIF pulls on to a stand at the end of the inaugural GA86 service from Jakarta to London Heathrow. Key-James Ronayne

## Successful GPS/Transponder Trial for GA

A system that enables general aviation (GA) pilots to use the full functionality of their Mode S Extended Squitter transponders has been trialled successfully. Data recorded over the six-month exercise saw GA pilots transmitting sufficiently accurate Automatic Dependent Surveillance-Broadcast (ADS-B) position information when their transponders were connected to non-certified GPS sources. Using a non-certified source meant they could track their aircraft in real-time on apps such as Plane Finder and Flightradar24.

Mark Watson, Head of Research and

Development at NATS, said: "The GA community using visual flight rules will look out of the aircraft window to see and avoid other traffic. The trial showed that they could transmit position data to enhance pilots' situational awareness, which supports the 'see, be seen and avoid' concept."

The trial is part of a wider project called 'EVA' – Electronic Visibility via ADS-B. As part of EVA, NATS and f.u.n.k.e. AVIONICS have been developing a new prototype device called the Low Power ADS-B Transceiver (LPAT), which is a portable, battery-powered and affordable gadget

that will provide the minimum functionality needed to make a GA pilot visible to other airspace users. It will also provide proximity warnings against other suitably equipped aircraft. LPAT can send and receive 1090 MHz ADS-B signals giving pilots greater awareness of the traffic around them; however, it does not match a full transponder in terms of functionality. For example, it is not currently interoperable with a Traffic Collision Avoidance System (TCAS) and its use will not allow access to some airspace if a transponder is mandatory. **David J Smith**

## Go2Sky Adds First 737-800

Slovakian carrier Go2Sky expanded its fleet with the arrival of Boeing 737-800 OM-GTE (c/n 29925). The aircraft, the airline's first 737-800, was handed over at Lasham Airfield, Hampshire, on March 18, and is fitted with 189 leather seats in a single class. It was then flown to the airline's Bratislava base. Norwich-based ISIS Aviation Services arranged the lease on behalf of Go2Sky.

"We are delighted to have taken delivery of our first B737NG aircraft," said Daniel Ferjancek, CEO of Go2Sky. "This New Generation model plus our recent IOSA-certification [IATA Operational Safety Audit] shows our commitment to constantly improving the product we offer our clients."

Go2Sky also operates three -400s variants.

## Delta Gets Maiden A321



Delta Air Lines took delivery of its first Airbus A321 on March 17. The jet, registered N301DN (c/n 6923), was flown from the manufacturer's Hamburg Finkenwerder plant to Minneapolis-St Paul International Airport, Missouri, via stops at Keflavík in Iceland and Goose Bay in Canada. It is the first of 45 A321s for Delta. Delta Air Lines



# Airbus Introduces New Cabin Concept

Increased passenger comfort, larger overhead bins and fourth generation in-flight entertainment (IFE) will all feature on Airbus' new A330neo.

The European manufacturer unveiled its new 'Airspace by Airbus' cabin concept in London on March 23. The new-look cabin will make its debut on the latest iteration of the A330 when it enters service at the end of 2017 with launch customer TAP Portugal.

Building on design features used in its A350 XWB, the A330neo will feature a 2-4-2 configuration in Economy with 18in-wide (45cm) seats. The overhead bins have been redesigned, which, Airbus says, will result in 66% more capacity. The A350's integrated LED handrail will also feature.

Passengers will benefit from extra legroom thanks to the adoption of fourth generation IFE systems throughout the aircraft; this technology is housed in smaller boxes under the seat providing clear space for passengers to stretch out. This will be complemented by onboard wireless services and high bandwidth connectivity enabling airlines to



The new 'Airspace by Airbus' Economy-Class cabin for the A330neo. Airbus

offer their passengers the ability to stay online during their flight.

The lavatories have also been upgraded and include antibacterial surfaces, touchless flushing and taps and LED lighting.

To provide more space for passenger seating on the main deck, the cabin crew rest

area has been relocated to the lower deck and features upgraded bunks, enhanced lighting and heating.

After the A330neo, Airbus will introduce the 'Airspace' concept on the rest of its widebody family and, eventually, across its entire product range.

## Embraer 175+ Touches Down in Amsterdam

KLM Cityhopper's fleet overhaul has begun with the arrival of its first Embraer 175+ on March 21.

The Dutch airline has 17 of the type on order; these feature a new wing tip and other technical enhancements designed to improve aerodynamic performance. The airline claims fuel consumption on a 'typical flight' is 6.4% lower than the original E175.

The new jets will join 30 of the larger E190 in the KLM Cityhopper fleet making it the largest Embraer operator in Europe. The carrier's Fokker 70s will now be phased out; the airline hopes to have completed its fleet renewal in 2018.

Crews can fly both the E190 and the E175+ because the aircraft feature identical cockpits and call for the same procedures.

KLM Cityhopper's E175+ are configured with 88 seats.

The first commercial flight departed on March 27, flying from Schiphol to Stavanger, Norway. Subsequent destinations will include Brussels, Ålesund, Torp Sandefjord, Turin and Manchester. Ultimately, the E175+ will fly to all the European destinations that KLM Cityhopper operates for KLM.

## Manchester Welcomes Shaheen



Pakistan carrier Shaheen Air launched a new three-times weekly service between Islamabad and Manchester on March 15. The flights, which depart the UK on Wednesday, Friday and Sunday, are being flown by an Airbus A330. Nik French

## Dreamliner for Air Europa

Boeing handed over the first Boeing 787-8 Dreamliner to Air Europa on March 15. It has been leased from SMBC Aviation Capital and is registered EC-MIG (c/n 36412). "Today's delivery begins a new chapter in Air Europa's story. The state-of-the-art 787 Dreamliner will provide us with significant operational advantages as we aim to expand our footprint around the globe," said Juan José Hidalgo, President of Globalia, the parent company of Air Europa.

The airline has 22 787-8s and 787-9s on order.

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### AIRLINE ORDERS

Airline	Aircraft	Number	Order Placed	Notes
Air India	Airbus A320neo	14	March 17	Leased from Alafco
Pegasus Airlines	Boeing 737-800	5	March 22	
United Airlines	Boeing 737-700	25	March 8	Deliveries start at the end of 2017



## Film Star



Turkish Airlines is promoting the *Batman v Superman: Dawn of Justice* film with this special livery on Boeing 777-300ER TC-JJN (c/n 40795). The left-hand side of the jet features the Superman logo with Batman represented on the other. Turkish is the 'official airline partner' of the movie. The jet visited Heathrow on March 22. Richard Vandervord

## US Production for Seeker

The Seabird Seeker is to be manufactured in the USA by Erickson of Portland, Oregon on behalf of Albuquerque-based Seeker Aircraft. The Seeker, which was designed in Australia where approximately 17 have been built by Seabird Aviation, is a two-seat multi-purpose surveillance aircraft with a strut-braced high wing and a pod-and-boom fuselage. The original prototype (VH-SBI, c/n 89001), known as the SB5N Sentinel, flew on October 1, 1989 and the production version is the SB7L-360A2 powered by a

pusher 160hp Lycoming O-360-B2C engine. Some early Seekers were assembled in Jordan and at least two have been delivered to the Iraqi Air Force's 70 Squadron for border patrol, equipped with the FLIR Systems Ultra 8500 surveillance suite. The US-built aircraft, which can be fitted with a gimbal-mounted WESCAM MX-10 video/IR system, will be marketed to governmental and law enforcement agencies as a significantly cheaper alternative to helicopters. Rod Simpson

## IN BRIEF

BLUE ISLANDS has signed a ten-year franchise agreement with Flybe starting from June. The Channel Islands carrier will repaint its five ATRs into the Flybe livery and operate six routes, including Jersey to Bristol and London City, on behalf of the Exeter-based airline.

AIR FRANCE has cancelled its remaining commitment for two Airbus A380s in favour of three A350-900s. The superjumbos had been due for delivery in 2013 but were deferred to 2017 due to the airline's weak financial performance at the time. The switch was revealed in parent Air France-KLM Group's latest financial statement.

Low-cost carrier NORWEGIAN says it will base 50 Boeing 787 Dreamliners at Gatwick should the Sussex airport get the green light to build a second runway. Speaking at the Aviation Club in London on March 17, CEO Bjørn Kjos said they would be joined by a further 100 short-haul aircraft.

Bombardier's CHALLENGER 650 business jet has received full type certification from the European Aviation Safety Agency (EASA). The achievement was announced by the manufacturer on March 8.

AIRBUS has started construction on its new A330 Completion and Delivery Centre in Tianjin, China. 'Green' aircraft destined for Chinese and Asian customers will be flown to Tianjin for completion activities including cabin installation, aircraft painting and flight testing as well as aircraft delivery and customer flight acceptance. Building work is expected to take around a year to complete with Airbus anticipating initial customer deliveries starting in September 2017.

## Next Gen Air Traffic Technology Goes Live

A new technology platform that will transform air traffic management in the UK has successfully entered service at NATS' Prestwick Control Centre. The system – called iTEC (interoperability Through European Collaboration) – includes a range of tools to help reduce controller workload, increase airspace capacity and improve safety by automatically detecting potential aircraft conflicts ahead of time. It also helps reduce aircraft fuel burn and emissions by

enabling the future introduction of 'Free Route Airspace' above 28,000ft, giving aircraft greater flexibility to fly optimum routes and to take advantage of prevailing weather conditions.

iTEC entered limited operational service at Prestwick late on January 21, with a Jet2 flight from Stansted to Edinburgh being the first to be controlled using the new system. It is now being used periodically during increasingly busy times to ensure a safe and

smooth transition to full operational service in the early summer. Initially the system is only controlling aircraft in Scotland's upper airspace sectors, but will be rolled out across the entire NATS operation at Prestwick and Swanwick over the next five years. The successful deployment of iTEC at Prestwick is part of a broader technology transformation programme at NATS that will see the air traffic management company investing £600m over the next five years. David J Smith

## A350 Arrives in Singapore

Singapore Airlines became the latest Airbus A350-900 operator when its first example, 9V-SMA (c/n 026), was delivered on February 26.

"The A350 is a key element in our overall capacity growth and fleet renewal strategy," said Singapore Airlines CEO, Goh Choon Phong.

"Its improved operating efficiency offers us the opportunity to open up even more new routes, providing more travel options to our customers."

Singapore Airlines has 67 A350s on order. After crew familiarisation services within Asia, the aircraft will be deployed on long-haul services to Amsterdam from May, and Düsseldorf from July.

## C Series Completes European Route-Proving



Bombardier CS100 C-FFCO (c/n 50006) conducted a European route-proving exercise during March. Operating from Zürich, the home base of launch customer Swiss International Air Lines, the aircraft flew more than 30 city-pair flights during the three-week long trial. It visited Manchester Airport on March 16. Ashley French



# Saudi KC-130Js Handed Over



**Royal Saudi Air Force KC-130J 3208**  
was one of the initial aircraft delivered.  
Lockheed Martin/ Damien A Guarnieri

A pair of Lockheed Martin KC-130J Super Hercules tankers have been delivered to the Royal Saudi Air Force (RSAF). The aircraft, 3208 (callsign 'RCH281') and 3209

('RCH282'), left the manufacturer's facility in Marietta, Georgia, on March 9 and routed via St John's International Airport, Newfoundland and Labrador, Canada and Ramstein AB,

Germany. They have joined the RSAF's 32 Sqn at Al Kharj, which flies the older KC-130H variant. The Saudis intend to purchase a total of 20 C-130J-30s and five KC-130J tankers.

## Apaches on Skis



The US Army's 1st Attack Reconnaissance Battalion, 25th Aviation Regiment has permanently attached skis to its AH-64 Apaches having been established at Fort Wainwright, Alaska. The helicopters have moved from Germany and are now part of the Alaska Aviation Task Force.

SSgt Sean Brady/US Army

## Russia Begins Syrian Withdrawal

A large number of Russian Air Force (RuAF) aircraft have returned home from Syria after President Vladimir Putin ordered a wide-scale withdrawal.

Putin made the surprise announcement on March 14, saying that the goals of Russian intervention had been achieved. The first aircraft began returning home the following day.

The move comes at the end of five months of RuAF operations from Latakia Air Base, where fighters had begun arriving last September to carry out air strikes in support of Syrian President Bashar Al-Assad. Types deployed to Latakia had included Sukhoi Su-24s, Su-25s, Su-30SMs, Su-34s and Su-35S combat aircraft, plus Mi-17 and Mi-24/35 helicopters. Although it has withdrawn the majority of its combat aircraft some fast jets are likely to remain. The RuAF's two latest attack helicopters, the Kamov Ka-52 and Mil Mi-28N, have both been recently deployed to the base.



# India Retires Sea Harriers

India has retired its last remaining Sea Harrier FRS51s ending the type's 33-year service with the Indian Navy.

Six Harriers departed from the aircraft carrier *INS Viraat* (R 22) for the final time on March 6 to return to their shore base at *INS Hansa*, Dabolim in Goa, marking the last operational flight by the type.

The 11 surviving aircraft have all been placed in storage at *INS Hansa* pending disposal. They are expected to be distributed to various establishments for preservation. The pilots from INAS 300 'White Tigers', which flew the type, will now move on to career advancement courses or conversion to the MiG-29K. It is planned to re-form the squadron on the MiG-29K for operation from the new indigenously built carrier *INS Vikrant*, which is scheduled to be ready for service around 2018-2019.

The 56-year-old *INS Viraat*, which is the oldest operational carrier in the world, will be decommissioned later this year. It had been built for the Royal Navy, which commissioned it into service in 1959 as the Centaur-class carrier *HMS Hermes* (R 12). The ship saw active service in the Falklands War before being sold to the Indian Navy, which put it into service on May 12, 1987, after a refit and upgrade.

# RSAF Hawk Delivery



BAE Systems has delivered the first two of 44 Hawk Mk 165 trainers for the Royal Saudi Air Force (RSAF). Hawks ZB101/2101 (c/n ST001) and ZB102/2102 (c/n ST002), left the manufacturer's Warton, Lancashire, facility on April 1 on their delivery flight. Gary Claridge-King

# 100 Years of La Fayette



Stunning markings have been applied to French Air Force Mirage 2000N 353/125-AM to celebrate the centenary of Istres-based squadron, EC 2/4 La Fayette. The jet will also be the lead aircraft in the Ramex Delta tactical display team this summer. Armée de l'Air/A Courtillot

# Approval for UK P-8 Purchase

The US State Department has approved the UK's planned purchase of up to nine Boeing P-8A Poseidon maritime patrol aircraft and associated major defence

equipment, training, and support. The approval was confirmed in an announcement on March 25, by the US Defense Security Cooperation Agency

(DSCA), which said it had delivered the required certification notifying Congress of this possible sale the previous day. The DSCA quotes the estimated cost as \$3.2bn.

# Air Cadet Flying Changes

A vast overhaul of the UK Air Cadet Organisation's flying activities is being launched. This will see the Volunteer Gliding Squadrons (VGS) decimated, with 14 of the 25 squadrons being shut down completely.

Earl Howe, Minister of State, Ministry of Defence, and Deputy Leader of the House of Lords, laid out the plans on March 10, in Parliament, providing a Written Ministerial Statement by Julian Brazier, the Parliamentary Under Secretary of State and Minister for Reserves.

The changes come as a result of the grounding of the entire Air Cadets fleet in April 2014, due to concerns regarding airworthiness of the VGS' Grob Viking T1 conventional gliders and Grob Vigilant T1 motor gliders. Since then no flying has taken place.

According to the statement "a value for money" solution to repair all 146 gliders has failed to materialise and consequently it has been decided to reduce the fleet to at least 73 Vikings and up to 15 Vigilants. Extra Grob Tutor fixed-wing Air Experience Flights (AEFs) will be created. Some gliders have already been restored to airworthiness and a limited amount of cadet flying has resumed.

The statement also said: "The reduced glider fleet will be operated by significantly fewer, but larger, VGS, which will have a regional focus and be better integrated with synthetic training and increased AEF locations. The number of Grob Tutor aircraft beyond 2017 for AEF/University Air Squadron (UAS) use will go from 45 to 70 airframes, enabling the enlargement of existing AEFs and the formation of two new AEFs. Regional

VGS hubs, which have the facility to provide overnight accommodation, will also be created across the UK."

The squadrons that are due to be disbanded are: 611 VGS at RAF Honington, Suffolk; 612 VGS at Dalton Barracks (Abingdon), Oxfordshire; 613 VGS at RAF Halton, Buckinghamshire; 616 VGS at RAF Henlow, Bedfordshire; 618 VGS at RAF Odiham, Hampshire; 624 VGS at RMB Chivenor, Devon; 633 VGS at RAF Cosford, Shropshire; 634 VGS at MOD St Athan, Wales; 635 VGS at RAF Topcliffe, North Yorkshire; 636 VGS at Swansea Airport, West Glamorgan, Wales; 642 VGS at RAF Linton-on-Ouse, North Yorkshire; 662 VGS at RMB Arbroath, Angus, Scotland; 663 VGS at Kinloss Barracks, Moray, Scotland; and 664 VGS at Newtownards, Northern Ireland.



# ANG F-15s Touch Down in Europe



**A 144th FW/California ANG F-15C Eagle 84-0014 arriving at RAF Lakenheath on April 2.** Nick Thompson

Airmen from the Massachusetts Air National Guard's (ANG's) 104th FW and California ANG's 144th FW have deployed to Europe as part of a Theater Security Package (TSP) in support of Operation Atlantic Resolve.

While in Europe some of the jets and personnel will take part in the NATO Air Surveillance mission in Iceland, while the others are taking part in Frisian Flag at

Leeuwarden Air Base in the Netherlands as well as bilateral training with other NATO and partner nations.

Six F-15 Eagles have deployed from Barnes ANGB, Massachusetts and six from Fresno ANGB, California. Four of the jets – 84-0014, 84-0016/MA, 85-0122/MA and 85-0129 – transited via RAF Lakenheath, Suffolk, on April 2, continuing on to Leeuwarden two days later.

## IN BRIEF

A tweet from the LIGHTNING FORCE HQ revealed that the UK plans to mark all of its F-35 Lightning IIs with "a single 'lightning bolt' on each tail fin to signify Lightning Force"; rather than squadron insignia.

Italian aerospace firm FINMECCANICA has signalled its intention to rebrand as Leonardo with effect from January 1 next year.

Defence Secretary Michael Fallon told the Scottish Conservative conference in Edinburgh on March 5 that he expects one of the additional TYPHOON squadrons the RAF is creating to be based at Lossiemouth, Moray. "We will be creating two additional frontline RAF Typhoon squadrons, and I am pleased to confirm today our preferred option is to base one of those new squadrons at RAF Lossiemouth," he was quoted as saying by the *Press and Journal*.

Pilatus Aircraft delivered the last three ROYAL SAUDI AIR FORCE PC-21 trainers on March 14. The 55-aircraft order was completed with the handover of 7709 (c/n 207, ex HB-HYX), 7710 (c/n 208, ex HB-HYY) and 7711 (c/n 209, ex HB-HYZ).

## Typhoon Gets Mission Markings

RAF Typhoon FGR4 ZK332/EB-J has gained mission marks following its recent involvement in Operation Shader, the UK's contribution to the fight against Daesh. The jet has had 53 Paveway IV symbols applied to the nosewheel door while deployed to RAF Akrotiri, Cyprus. The jet is now back at RAF Lossiemouth, Moray. Niall Paterson



## MILITARY AIRCRAFT ORDERS

Air Arm	Company	Number and Type	Contract Date	Delivery Date and Notes
Dominican Republic Air Force	Tecnam	1 x P2006T		
Italian Air Force	Finmeccanica	9 x T-346A Master	March 18	All deliveries completed by 2018
Japanese Coast Guard	Airbus Helicopters	1 x H225	March 14	Delivered by the end of 2018
Lebanese Air Force	Bell Helicopters	3 x UH-1H-II Huey II	March 15	Estimated completion date of March 14, 2017
Philippine Navy	Finmeccanica	2 x AW159 Wildcat	March 31	To be delivered in 2018
Royal Saudi Air Force	Sierra Nevada	2 x Beechcraft King Air 350ER	April 1	Contract completion is expected by April 30, 2020
United Arab Emirates	Piaggio Aerospace	8 x P.1HH HammerHead	March 8	
US Army	Sikorsky	35 x UH-60M Black Hawk	March 8	Estimated completion date is December 31, 2016
US Army	Boeing	Unspecified x AH-64E Apache Guardian	March 20	
US Marine Corps	Bell Helicopters	12 x UH-1Y Venom	March 11	Expected completion February 2019
US Marine Corps	Bell Helicopters	13 x AH-1Z Viper	March 11	Expected completion February 2019
US Navy	Gulfstream Aerospace	1 x G550	March 18	Contract completion expected December 2018
USAF	Lockheed Martin	14 x C-130J-30 Super Hercules	March 24	
USAF	Lockheed Martin	5 x HC-130J	March 24	
USAF	Lockheed Martin	8 x MC-130J	March 24	
USAF	Boeing	30 x QF-16	March 28	Contract completion is expected by April 9, 2018

## Saudi Eagles in Turkey

Four Royal Saudi Air Force Boeing F-15S Eagles deployed to Incirlik Air Base, Turkey on February 26, for operations against Daesh. The aircraft come from 92 Squadron/3 Wing at Dhahran-King Abdul Aziz Air Base, and were supported by an RSAF Airbus A330 Multi-Role Tanker Transport (MRTT).

Meanwhile the Royal Canadian Air Force has relocated four CF-188 Hornets from Kuwait to Mihail Kogălniceanu Air Base in Constanta, Romania to take part in Exercise Resilient Resolve. The aircraft, from 425 Tactical Fighter Squadron, were deployed on Operation Impact, Canada's mission against Daesh, however the country ceased air strikes in Iraq and Syria on February 15. Canadian CC-150s and CP-140s continue to undertake air-to-air refuelling and intelligence, surveillance and reconnaissance missions on Operation Impact.



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# EXERCISE COBRA WARRIOR

**Editor Dino Carrara** reports from RAF Coningsby on a groundbreaking deployment of Luftwaffe EF2000s.



**S**ix Luftwaffe Eurofighter EF2000s recently took part in Exercise Cobra Warrior 16-1 organised by the RAF for its next batch of Typhoon-qualified weapons instructors as the final part of their course.

The flying element of the exercise took place between March 7 and 24 and sorties were flown every second day. The periods in between were used for planning the complex missions.

Five of the German pilots were also in the last phase of the Luftwaffe's first Eurofighter qualified weapons instructors' course being run from Laage's resident Fighter Weapons School. The German Eurofighters arrived on March 3 and departed on the 23rd.

The RAF and Luftwaffe Typhoons (Germany uses the name EF2000) were part of a Blue Air force comprising up to 30 aircraft, while Red Air was between ten and 15 strong, although if 'shot down' the jets could 'regenerate' to rejoin the fight.

Virtually all the RAF's fast jet units participated as well as airborne early warning, intelligence surveillance and reconnaissance (ISR) plus transport aircraft and helicopters. A Cobham Dassault Falcon 20 also took part.

## ROLES

The Eurofighter student weapons instructors performed roles during their missions that included defensive counter air, offensive counter air, strike, anti-surface force air operation (anti-

Above: A German EF2000 on its take-off run at Coningsby with St Michael Church in the distance.

Below left: All six German Eurofighters parked at RAF Coningsby's Visiting Aircraft Handling Section.

Below: An EF2000 taxis back to its parking position.

Below right: Most of the ground personnel supporting the deployment were from Wittmund, as was the detachment commander who did not fly during the visit. Lt Col Gero Finke is station commander of the German base and while the EF2000s were in England he had the Taktische Luftwaffengruppe 'Richthofen' badge applied to them all.







Above: A Luftwaffe EF2000 taxiing at RAF Coningsby on March 22 prior to departing on an Exercise Cobra Warrior sortie. All photos Key-Dino Carrara

The German pilots performed purely air-to-air missions as the Luftwaffe is still working up its air-to-ground capability with the Eurofighter. The mission commander role was shared between each countries' Eurofighter pilots.

The exercise was organised by 92 (Reserve) Tactics and Training Sqn, a non-flying unit that is part of the Air Warfare Centre at RAF Waddington, Lincolnshire. The squadron's badge depicts a cobra, hence its inclusion in the name of the exercise. The event was formerly entitled the Combined Qualified Weapons Instructor (CQWI) Course Op Phase.

Four RAF Typhoon pilots were using Cobra Warrior as their graduation exercise. Their Typhoon Qualified Weapons Instructor Course was organised by 29(R) Sqn at Coningsby.

Station Commander of RAF Coningsby Gp Capt Jez Attridge, said: "The RAF Typhoon weapons course is quite mature now, we've had Typhoon for ten years, and [it] encompasses air-to-air and air-to-surface. We are now feeding in all the extra lessons from Operation Shader in the Middle East as well as some of the new capabilities we're bringing online. This now is a step change in how we are doing it, with the Luftwaffe coming onboard."

The officer commanding the course who is assigned to 29(R) Sqn (a new RAF security policy stipulates that personnel below Group Captain rank cannot be named), said: "The whole idea of Exercise Cobra Warrior is to learn integration between all UK assets so we've got pretty much every single RAF

platform involved. The biggest point, from a UK perspective, is to understand and learn how to integrate and clearly that has been improved by having the Luftwaffe here and building that relationship. This Cobra Warrior is purely for the RAF Typhoon weapons school and the Luftwaffe weapons school. All the other UK courses have started running now and they graduate in October."

## INCEPTION

German involvement in Cobra Warrior originally came about from a request by the commander of the Luftwaffe's Eurofighter Fighter Weapons School Lt Col Julius Kurbel to meet his counterpart at the RAF Typhoon weapons school.

Lt Col Kurbel visited Coningsby 18 months ago and the two commanding officers exchanged details of their courses.

An invitation was then extended to the Luftwaffe to take part in Cobra Warrior and the possibility of its future involvement is being examined. As this is the first Luftwaffe Eurofighter weapons course, the syllabus will be analysed before the next one, which is expected to start in the autumn.

As to whether the two other NATO members that fly Typhoons could take part in future Cobra Warriors, Gp Capt Attridge said: "I believe the Spanish and Italians currently hold weapons instructor courses internally. So we now have the opportunity to make this a Eurofighter nation forum where we can develop and learn together – that is what we would like to see." **AN**

shipping), high value asset protection defence and escort of heavy aircraft and helicopters.

An RAF Airbus Voyager and Luftwaffe Airbus A310MRTT provided air-to-air refuelling for each mission and saw both forces' Eurofighters refuel from the other nation's tanker. The German pilots simulated use of the IRIS-T and AMRAAM missiles as well as the Mauser BK-27 gun.

The missions were flown over the North Sea and also made use of the Spadeadam electronic warfare range in northern England as well as OTA-E (Operational Training Area-Echo), which is located over Northumberland and up to Scotland as far as the former RAF Leuchars. Bad weather led to the cancellation of one of the flying days.





# First Air Force One Flies Again



Lockheed C-121A Constellation *Columbine II* returned to the skies on March 19, bound for its new home in Bridgewater, Virginia. This was the first presidential aircraft to fly under the 'Air Force One' callsign when Dwight D Eisenhower was President of the US. It has been purchased by Dynamic Aviation and was flown from Marana, Arizona, where it had been stored, to the company's Virginia home via a stop at the Mid America Flight Museum in Mount Pleasant, Texas. Dynamic Aviation will now fully restore the aircraft, with the aim of presenting it on the airshow circuit.

Tyson V Rininger

## Final Flight for Prototype 727

Boeing's prototype 727, N7001U, made its final flight on March – a 15-minute ferry trip from Paine Field to Boeing Field, Washington state.

Named *Spirit of Seattle*, it was officially retired in 1991 and donated to the Museum of Flight by United Airlines. Volunteers have been overhauling the airliner ever since at the museum's Restoration Center & Reserve Collection at Paine Field.

The last flight, made under a special permit, had pilot Tim Powell and co-pilot Mike Scott at the controls. They were joined by flight engineer Ralph Pascale and safety officer Bob Bogash.



Prototype Boeing 727 N7001U at the Museum of Flight after its final flight on March 2. Joe G Walker

The tri-jet is currently on display in the Museum of Flight's Airpark but is due to be

placed in the new Aviation Pavilion later this year. Joe G Walker

## Lynx Arrives at Aeropark



Former Royal Navy Lynx HAS3 XZ721 has arrived at East Midlands Aeropark at East Midlands Airport after being acquired by Mark Lindsay. The helicopter was acquired from Air & Ground near Hixon, Staffordshire, on February 22 and transported by road to the Aeropark four days later. A Falklands veteran, XZ721 was built in 1980, serving for 20 years before being placed in storage in 2010. Mark Lindsay

## Anson Bound for Greece

The fuselage of a 1941 Avro Anson Mk.I AX246 has left its temporary storage at Leeds East Airport on a truck bound for a new home in Greece.

It is joining a museum dedicated to the Hellenic Air Force and will represent an aircraft used in Greece following its liberation after World War Two.

The first part of the move involved the fuselage frame, gun turret, one Cheetah engine and various parts, including the distinctive 'bubble' engine cowlings to Athens.

The empennage and centre section of the Yeadon-built Mk.19 Anson, G-AGPG, followed a week later and will eventually be mated to the restored fuselage, and painted to represent an early post-war Hellenic AF Anson. Ken Cothliff



# Restored Bird Dog



Cessna O-1E I-BDOG (61-2987) returned to the air for the first time in February following a six-year restoration. Painted as O-1G 51-11952 *Mekong Mauler*, it made the flight from Montagnana airfield in northern Italy.

Every component has been stripped and overhauled and the engine removed and zero-timed. Meanwhile all the panels, radios and the antenna were refitted to be as close to the 1960s original as possible.

*Mekong Mauler* was noteworthy for being the first Bird Dog in Southeast Asia to wear a 'shark mouth' on the nose, and was

**Bird Dog I-BDOG (61-2987) flew for the first time in February after a six-year restoration.**

the personal mount of WO Rick Shoup who was based at Vinh Long, South Vietnam, between 1967 and 1968 as part of the 199th Reconnaissance Aviation Company.

Built in 1963, the aircraft is in fact 61-2987, one of 44 Bird Dogs delivered to Italy under the US Government's Military Assistance Defense Program. It was coded E.I.-20 and flew with the Italian Army until 1992 when it was sold to the Italian Aero Club and converted to a Cessna 306C at the OMA Factory near Perugia.

While operating as a glider tug at Foligno, near Perugia, in 2001, and registered I-EIAI, the aircraft was badly damaged in a ground loop. Andrea Rossetto, the President of the Historical Aircraft Group (HAG) in Italy, acquired and took it to his workshop near Montagnana for the restoration.

He will debut the Bird Dog at HAG's 2016 annual Fly Party at Montagnana on June 25/26. His next project is to restore a Procaer F.15 Picchio. **Geoff Jones**

## Back to School

An Essex primary school has found a novel way to increase its teaching space – by using Cessna 550 Citation II G-DWJM (c/n 550-0296). Milton Hall Primary School in Westcliff-on-Sea acquired the jet, which had been in store at nearby Southend Airport, and has installed it on the school site.

Moved on March 5, it will have a complete makeover to turn it into a space pupils can use for ICT (information and communications Technology), media and creative writing and reading lessons. The school is aiming the jet to generate its own energy using solar panels and wind turbines. It was last registered to TL Aviation Intrad and cancelled by the CAA on February 26, 2014.

## A-10 Returning to Bentwaters

Bentwaters Cold War Museum has acquired Fairchild Republic A-10 Thunderbolt II 80-0219 for display at the Suffolk attraction.

The jet, which once flew from the base, is on loan from the National Museum of the USAF (NMUSAF) and has been at RAF Alconbury, Cambridgeshire, since 1988.

The NMUSAF has given the team at Bentwaters permission to dismantle and relocate the aircraft with the support of Alconbury's 423rd Civil Engineer Squadron. It is expected to arrive at Bentwaters in April. [www.bcw.org.uk](http://www.bcw.org.uk)

## Jumbo on the Move

After nearly 20 years' exposure to the Pacific Northwest weather, prototype Boeing 747 N7470 (RA001) has been put under cover in the Museum of Flight's new Aviation Pavilion at Boeing Field, Seattle, Washington state.

The jumbo was moved on March 5 without public announcement or fanfare, a stark contrast to the placement of 787 Dreamliner ZA003 last October.

Though tolerances were not as tight as the 787's move, it did take a little while for RA001 to fit into its final spot within the building, which is still under construction.

The new Aviation Pavilion is scheduled to open this summer. **Joe G Walker**

## Dove Heads North



De Havilland Dove 6 D-IFSB arrived at Fishburn Airfield in County Durham on February 2 for the newly formed Fishburn Historic Aviation Centre. It was previously at the de Havilland Aircraft Museum and arrived by road along with another former London Colney exhibit, Venom FB.54 J-1790. **Ian Tate**





# AMERICAN AIR MUSEUM REOPENS

IWM Duxford reopened its American Air Museum to the public on March 19 after a 12-month, £3m redevelopment.

At the heart of the redesign are the personal stories of 85 people whose lives are entwined with the aircraft types on display. This has been created with the aid of personal artefacts, such as uniforms, medals and cigarette cases, displayed in large glass cabinets, and video interviews.

Among the 850 items on display in the American Air Museum are many that have never before been seen by the public. These include a particularly poignant exhibit, a section of steelwork from the World Trade Center's Twin Towers, and Virginia Irwin's photo album depicting her time as a war

Above: **Eighteen aircraft are on display in the redeveloped American Air Museum at IWM Duxford.** Darren Harbar



Above: **North American P-51K Mustang 44-73979 has been restored as 44-11631 Etta Jeanne II and was previously on display at IWM Lambeth.** Key-James Ronayne



Left: **McDonnell Douglas F-15A Eagle 76-0020 has moved inside having previously been on display outside the American Air Museum.** Key-James Ronayne

correspondent during World War Two.

Three aircraft have been removed from the museum: the Grumman TBM-3 Avenger, the Lockheed T-33A Shooting Star and the North American F-100 Super Sabre. The last two have been returned to the US, from where they had been on loan; the fate of the Avenger is not yet known.

The McDonnell Douglas F-15A Eagle

has moved inside and provides a dramatic welcome for visitors, suspended from the ceiling above the Boeing B-52D Stratofortress. It is one of ten aircraft that are hung from the ceiling in the museum, including the Lockheed U-2C and the Douglas C-47A Skytrain. Also among them is North American P-51K Mustang 44-73979 (marked as 44-11631, *Etta Jeanne II*), which

was previously on display at IWM Lambeth as *Big Beautiful Doll*. This replaces the replica that was on display at Duxford.

Funding for the project came from the Heritage Lottery Fund and a number of sponsors, foundations and individual donations. The American Air Museum, which was designed by Norman Foster and covers 70,000sq ft (6,503m<sup>2</sup>), originally opened in 1997 and has since welcomed 5.5 million visitors. **AN**



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# VX-30 BLOODHOUNDS DIVERSITY

**Scott Dworkin** details the wide-ranging and important work of one of the US Navy's premier test squadrons.



**T**he US Navy's VX-30 Bloodhounds weapons test squadron at Point Mugu, California, is involved at the cutting edge of new technology and equipment. It is assigned to the Naval Test Wing Pacific and is a component of the Naval Air Warfare Center Weapons Division (NAWCWD). The Bloodhounds' mission is to provide research, development, test, and evaluation of manned and unmanned fixed and rotary wing aircraft, as well as weapons

systems to the US Navy and other entities within the Department of Defense. VX-30 is one of the most unusual squadrons in the navy due to the variety of tasks it performs and because it has 11 different departments spread across Point Mugu, which is part of Naval Base Ventura County. The unit has a diverse personnel make-up with some of the most junior Operational Specialist Seaman to the most seasoned naval test pilots, National Oceanic and Atmospheric

Administration (NOAA) officers, government civilian staff, including engineers and support personnel, and various contractors providing maintenance. The squadron is also critical in the continual operation of the Navy's Sea Range adjacent to the base. It is the world's largest instrumented over-water range, encompassing 220,000 miles<sup>2</sup> (569,797km<sup>2</sup>), providing extensive test and training capabilities for the US Navy, Department of Defense and allied forces.



# BLOODHOUNDS IN TEST



Commander Sam Hanaki, who took charge of VX-30 in February last year, provided insight into the unit. He said: "If you look at the entire history of VX-30 it has always been a very dynamic squadron. We used to have F-14s, F-4s, F/A-18s. At one point there was a fleet of a 100 aircraft on the ramp here. The squadron has always changed and I can guarantee you it will look different five years from now, it changes all the time." He added: "Due to base

**One of the S-3B Vikings that until recently served with VX-30 flying in the Sea Range off Point Mugu. This aircraft is now at NASA's Glenn Research Center in Ohio.** All photos Scott Dworkin unless stated

realignments, budgetary issues and the consolidation of resources, the large fleet of aircraft shipped out of here years ago and we are now down to two basic platforms but the mission, if anything, has expanded for us. The fact is VX-30 has a vital role in the

development in most of the programmes in the Navy today. I think I'm correct that we are the most diverse squadron in the Navy. I know we're the most diverse test squadron. The fact that we have every type of aircrew assigned to this squadron is reflective of the mission that we do, from F/A-18 crews all the way to UAS [unmanned aircraft systems] guys, helicopter pilots, to big wing guys [P-3, P-8], to old S-3s guys like me. I think every single platform in the ►





Above: **The squadron uses the KC-130T for various missions, including range support, cargo airlift to and from the Navy facilities on San Nicholas and San Clemente Islands, and more recently, sonobuoy drops.**

Below: **The unit's NP-3C, which has the rotodome from an E-2C Hawkeye.** Ashley Wallace

of the distinctive vacuum-like sounding engines, performed a range of missions for the Navy including anti-submarine warfare, anti-surface warfare, carrier onboard delivery, electronic surveillance, airborne tanking and over-the-horizon targeting. When the S-3 was tagged for retirement from the fleet in 2009 the Naval Air Warfare Center Weapons Division and specifically VX-30 saw the opportunity to use the type. They wanted its sophisticated APS-137 inverse synthetic aperture imaging radar to improve VX-30's crucial sea and air range surveillance and clearance capabilities. The S-3 was also useful for test activities due to its excellent endurance, speed and room for multiple types of avionics, pods and test equipment.

The Bloodhounds' three S-3s were formerly with Sea Control Squadron VS-22. Before arriving at VX-30 they were sent to the



An MQ-8C Fire Scout hovering on the ramp prior to heading out to the Sea Range for a test flight. Typically, the aircraft will hover for about five minutes while the operators on the ground review data streaming back from the helicopter to make sure everything is okay to continue the flight.

Navy is represented in our ward room right now."

In recent years VX-30 has been a part of and supported a large range of programmes. Examples include the first flight test of the Harpoon Block II+ anti-ship missile, testing of ship systems and weapons, F-35 Lightning II weapons testing and operational testing and live-fire of the Joint Standoff Weapon (JSOW). Other work has included F-22 Raptor radar evaluation flights, complex missile engagements against Harpoon and other aerial targets, missile firing exercises with Carrier Air

Wing Seven, USS *John C Stennis* and *Ronald Reagan* aircraft carriers and a plethora of other weapon and aircraft tests on the Sea Range. These test events are only possible with the full support of the Bloodhounds and its fleet of aircraft, which currently consist of some of the oldest aircraft in the Navy including variations of the P-3 Orion, C-130 Hercules and until recently the S-3B Viking.

## VIKINGS

For more than 35 years the S-3 Viking, affectionately known as the 'Hoover' because

Navy's Fleet Readiness Center Southeast in Jacksonville, Florida for an extensive maintenance and repair programme which would allow another five to six years of service life.

Cdr Hanaki said: "It fitted the mission perfectly here for VX-30. One of the main missions of our squadron is range surveillance and clearance of the sea test range. There is a lot of square mileage to cover and the endurance of the S-3 coupled with the APS-137 radar, a very capable system, as well as the small crew all played into it being a very attractive platform for the mission out here. For example, with a P-3 we have to have a crew of at least five to do the same mission that we could do with two people, maybe three, in the Viking." He added: "When the option was there to continue operating the S-3 here at VX-30, just from a manning perspective it was attractive to the command. The airplane still also had a lot of life in it in 2009 so once the Navy decided to retire the aircraft from fleet service there were a lot of interested people at NAWCWD looking at what we could do with the S-3. Back when Captain Rosseau [former Commander of VX-30 and Commodore of Point Mugu] was here, as a career S-3 pilot, he was one of the instrumental officers who





**The cockpit of a S-3B Viking.**

lobbied and validated to acquire the Vikings for our mission and eventually got the S-3 out here. They found a great home at VX-30 for the past five years but the time came to finally retire them for good."

The existing infrastructure and parts supply for the S-3 dwindled and due to the requirement for the aircraft to go through a major phase service in early 2016 the decision was made by the Navy to finally retire the last three Vikings. Cdr Hanaki explained: "We knew that for a couple years we needed to basically figure out where to keep getting parts to support these aircraft once the supply on hand at the depot in Jacksonville started to run out. We were getting toward the end of that supply of parts very quickly and it was starting to get less reliable from an operational and planning standpoint in terms of what to do when things broke on the jets. We did not want to get to the point where when something was broken there were no parts

to fix the problem and the aircraft just sat on the ramp and that reality was creeping up on us rapidly.

"A much larger issue for us was the ejection seats. The one major limiting factor, bigger than even the parts supply, is the explosive cartridges for the ejection seats, because they are not being made anymore, we had to keep requesting extensions from the Navy. I think the command finally decided, for safety above everything else that we could not grant any more extensions. Once that was realised, and we factored in the rest and figured out it just would not be financially feasible to bid contracts for parts that are no longer manufactured for just three aircraft or send them through another major service life extension to re-certify the seats, it just seemed to be about the right time to retire the aircraft. It is still a very capable platform

for the mission but the math didn't make sense any more for the Navy.

"We also have recently acquired two additional P-3s from the fleet to replace the three S-3s we had here. They have a little bit longer legs out on the range, true, we lose the advantage of the speed and crew manning size I mentioned earlier, but the P-3s are certainly capable of doing all of the missions we had the S-3 doing but that is a short-term plan. We still need another platform follow-on from the P-3s because, similar to the S-3, they are even older and eventually they are going to be retired from Navy service but because they are still in the fleet, parts and maintenance are not an issue for now."

The last S-3 Viking left Point Mugu on January 11 for storage at Davis-Monthan AFB, Arizona. Two of the S-3s are in storage with the Aerospace Maintenance and Regeneration Group and the final S-3 was delivered to NASA at the Glenn Research ►

**The VX-30 ramp at Point Mugu.**







Above: Fire Scouts in VX-30's UAS hangar. The MQ-8C test programme is a joint effort between Northrop Grumman, the primary contractor, and VX-30.

Below: Bloodhound 701 was delivered to Davis-Monthan AFB in Arizona for storage in November 2015.



Center located in Cleveland, Ohio to be modified for research missions. It will join an S-3 already used by NASA from that facility.

Is there any potential future for more S-3 Vikings to fly again? Given the capabilities of the aircraft, and the low flight hours on many of the airframes in storage, it seems to be the perfect option for a potential foreign military sale.

## HERCULES AND ORIONS

The squadron uses three KC-130T Hercules to carry cargo to a variety of locations, including weekly runs to San Nicolas Island and San Clemente Island, off the coast of California, which are controlled by the Navy. Additionally, these Hercules provide air-to-air refuelling of other units' aircraft using the Sea Range and ensure safety in the area

by monitoring for water or airborne intruders during hazardous operations.

The Orions flown by VX-30 are also used for surveillance and clearance of the Sea Range, as well as providing telemetry data during missile testing. The squadron flies the only two 'billboard' NP-3D Orions in the Navy's inventory. The modification contains radar that can provide an over-the-horizon capability. The phased array telemetry antenna systems can track up to five independent, geographically separated, S-Band telemetry sources (including Harpoon, SLAM and Tomahawk missiles), provide recorded data collection in the same band and can re-transmit six L-band frequencies to ground stations for real-time analysis. One of the NP-3D's is also fitted with Cast Glance, a stabilised photo-optical system. This provides high-resolution photographic coverage of test operations.

The squadron also has one specially configured NP-3C fitted with an E-2C rotating antenna (rotodome), Hawkeye 2000 airborne early warning (AEW) system and an Airborne Engagement Capability (AEC) suite to support the Navy's future AEW/AEC programmes. Plus, there are two recently acquired P-3Cs that came from the fleet with the latest upgrades to replace the Vikings.

In addition to local operations, VX-30 deploys personnel and aircraft worldwide supporting national-level test events. Although the squadron is considered a shore command, the capabilities of its aircraft and military/civilian workforce ensure they are always in high demand. In addition to the aircraft deployments, VX-30's Airborne Threat Simulation (ATS) department deploys worldwide with specialised equipment to support numerous fleet exercises. This department maintains around 48 different electronic warfare pods, ensuring optimum threat simulation and are regularly called upon to provide electronic attack and active emitter systems services, simulating aerial threats to the fleet.

One of the squadron's two NP-3D aircraft returns to the base after a morning sortie over the Sea Range.





## NEXT GENERATION JAMMER

Another major aspect to the squadron's mission is the testing of new and revised aircraft systems run by VX-30's Projects Department. Cdr Hanaki elaborated: "What we do in our labs here at Point Mugu with VX-30 staff also drives a lot of our mission. Big projects like Next Generation Jammer are at the forefront of what our squadron is working on every day and will affect the battlespace for years to come."

This Navy programme, designed to replace the 1970s ALQ-99 pod, is also aimed at increasing offensive electronic warfare (EW) technology. This jammer, to be operational by 2020, is intended for the Navy's EA-18G Growler. Cdr Hanaki added: "A lot of that development has been going on at VX-30 and I think most people don't know the levels at which we support that programme from the EW software development, to the mission planning software, which is why we have the F/A-18 guys and EA-6B testers assigned to the squadron. The mission planning and software packages are obviously becoming more and more important with the complex missions our Navy aircraft take part in around the world and we are getting increasingly more test-specific guys straight out of test pilot school [TPS] to work on programmes like that. The fact that they come here straight from TPS is a shift in this squadron as well. Effectively we are now a lead test organisation, something we were not in the past."

"The logic behind this is that when you spend a lot of time in the advanced weapon labs developing the software, working with engineers, doing the lab testing and making sure everything's good to go, then you can get more iterations of the software developed before you go to an actual flight test. The more you can test it on the ground, up front in the labs the better, because it's so expensive to flight test. What we are finding is that by doing it this way you can actually get a better more robust test programme because you can discover a lot of things in the labs early, that way you save money ▶

**Bloodhound 700 starts a dive above the Channel Islands off the coast of Southern California – note its carrier arrestor hook is lowered for the camera.**



**This KC-130T was recently acquired by the squadron from the US Marine Corps and still carries the markings of that service.**





This S-3B received a 'Battle of Midway' paint scheme in 2011 to mark 100 years of US naval aviation.



and actually fix things before it gets into the aircraft. By the time you are flying, many times it's too late in a sense because you are now flight testing software in the actual aircraft and if you're discovering major glitches at this point in programme, then you have got real problems. You may have to take major steps backwards to try to fix them and if the problems are large enough things can slip massively not only timewise, but in budget as well. By having the VX-30 test pilots in the labs and working with the software development teams you can work out a lot of the bugs on the ground before you have to do an actual flight and with the complexities of these software packages this is very important and cost effective and the new way of doing test and we are a big part of that."

## UNMANNED TESTING

The Bloodhounds are also the primary operators of Group III and above UAS in the Naval Air Warfare Center Weapons Division and also the only test squadron for the Navy's next generation unmanned helicopter, the MQ-8C Fire Scout. Its airframe is manufactured by Northrop Grumman and based on the commercial Bell 407 helicopter. The VX-30 Unmanned System Test (UST) team has a mix of enlisted sailors, officers, government civilians and contract support personnel. The goal is to safely and effectively test and integrate new and existing UAS aircraft into Navy service. The UAS department is the most rapidly expanding within VX-30 and will continue to grow for the foreseeable future. The squadron has been paving the path for operations and test

with the MQ-8C as well as the NRQ-21A Blackjack, the primary US Marine Corps UAS platform of the future. The UST team has developed a comprehensive Concept of Operations (CONOPS) for unmanned aircraft systems which is being used as the model within the vast Naval Air Systems acquisition community.

The Bloodhounds have achieved many firsts in unmanned systems such as flying a UAS in national airspace on the West Coast under a FAA Certificate of Authorization (COA), the first unmanned system approved to operate concurrently with manned aviation traffic in tower airspace and the first military operators of the MQ-8C.

The Fire Scout completed its developmental flight test programme in 2015 and has an ongoing operational assessment

The last two S-3Bs in the US Navy do one final break over the Channel Islands on the week they both left Point Mugu, one for storage and the other to NASA.





One of the S-3Bs at Point Mugu in the hangar alongside Bloodhound 404, a KC-130T.



under way at VX-30. By the end of last year, the MQ-8C had accumulated more than 500 flight hours and flown in excess of 350 sorties. The vital role of the UST team at VX-30 was echoed by Cdr Hanaki: "The UAS work is a big part of what we are doing here every single day and I am pleased to say that the squadron has really embraced that mission. Actually, it is our largest department right now and the largest unmanned test support unit in the United States. What we are doing with UAS is beyond just testing and evaluation. We are looking and evaluating at all the different options, such as how to use those systems for our range support mission and to determine if we can use these aircraft in lieu of the manned aircraft to build a picture of our sea test range. This application if

validated could apply not just to the sea range but a lot of other range support applications around the world, so the potential is endless. The decision by the Navy to consolidate the MQ-8 programme at Mugu was a very significant decision, probably somewhat driven by the early work VX-30 has been doing in unmanned systems and we feel was a huge decision by NAVAIR [Naval Air Systems Command] to place the entire programme here." He continued: "We all know unmanned systems is a river that's coming, rapidly, and at VX-30 we want to be able to shape the flow of that river and I feel it's now going in the right direction that we think it should go. VX-30 is right in the middle of it, and we're pushing a lot of changes, not just in NAVAIR but [for the] Navy in terms of shaping

the future employment of some systems for operators worldwide. I foresee the MQ-8 programme and unmanned systems as a whole being a big part of the future of the mission at VX-30 and at Point Mugu."

The Bloodhounds have had a role in shaping the future of naval aviation for many decades. It is perhaps best known for the sea range support the squadron provides with its aircraft but its mission goes way beyond that. Cdr Hanaki summed up its important contribution when he said the squadron was "continuing to provide safe and efficient ground and flight test, airborne flight test support and experimentation operations involving aircraft, weapons and weapons systems across the United States Navy and Department of Defense programmes." **AN**

A P-3C sits on the ramp in front of Laguna Peak. This is one of two Orions that have replaced the Vikings at VX-30.





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# ICE PILOTS

## BUFFALO AIRWAYS

Buffalo Airways' fleet of classic propliners provides a vital lifeline to some of Canada's most remote settlements.

An accident last year resulted in the suspension of the airline's Air Operator Certificate but it is now getting back to business. **Ken Cothliff** reports from 'North of 60'.

**Y**ellowknife Airport, in Canada's North West Territories (NWT) is home to Buffalo Airways, an operator made famous by the television series, *Ice Pilots NWT*. The show charts the fortunes of the airline, including the severe Canadian winter months, hence the title.

The crash of Curtiss C-46 Commando C-GTXW at Déline on September 25, led to

a much-publicised suspension of Buffalo's Air Operator Certificate (AOC) on November 30. So as not to disappoint local passenger and cargo customers over the Christmas period, Buffalo continued its Hay River to Yellowknife services using chartered aircraft; however this also ceased on December 24. On January 12, Buffalo's corrective action plans were approved by Transport Canada

and the suspension was lifted. The airline has now recommenced freight flights.

### STARTING OUT

Buffalo Airways was founded by Robert Gauchie in 1969 and that winter he teamed up with Joe McBryan. By May 13, 1970 'Buffalo' Joe had purchased the operating licence and bought out two other partners to





Above: Buffalo's C-GZWS took part in the D-Day landings and Operation Varsity during World War Two.

Main photo: Buffalo Airways is well known for its fleet of classic aircraft and is one of the few remaining users of the Curtiss C-46 Commando. Tony Storck

become sole owner. Many bush operators of that time used the location of their business in their company names; Buffalo Airways wanted to be different. It began life as a small operation using Beech 18s, de Havilland Canada DHC-2 Beavers and Piper PA-31 Navajo aircraft. "Modest stuff," said Mikey McBryan, Joe's son and the airline's general manager. It wasn't until 1978 that the first Douglas DC-3 was acquired.

Mikey added: "It was not just Joe wanting to buy bigger aircraft; the customers drove

forward a demand of a certain standard of service, and greater capacity. When Joe bought that first DC-3 there were plenty around – now he's the last [operator] in Canada. It just happened that way. These days it's rather the *Jurassic Park* of aviation."

Joe feels there will never be a complete replacement for the DC-3, and when it is retired its work will be taken on by such aircraft as the Dash 7/Dash 8 series and the BAe 146, all of which are now working in the NWT.

Mikey continued, "The NWT is the size of Texas, but with only a population of some 40,000, it is difficult to justify bringing in a C\$2m aircraft for so few customers, so old aircraft are the answer."

## CHALLENGES

A problem for Buffalo is the shortage of avgas. Chuck Adams, the carrier's chief engineer explained another challenge: "Additives to enable the older engines to operate are getting increasingly rare, ▶





and in some cases only available from Russia. It takes a creative mind to keep these old machines in the air, and that is also becoming difficult. Younger people in aviation are used to a 'replace rather than repair' frame of mind, and that is just not possible with aircraft such as the C-46 Commando for which spares are becoming very difficult to find. Kids these days don't tinker with cars like I used to – it's a computer/internet generation."

During *Aviation News'* visit last July he

was replacing a tailwheel assembly on DC-3 C-GPNR, the first Dakota Buffalo acquired. Chuck revealed: "DC-3 parts are still relatively easy to obtain. Joe keeps several aircraft here and at the main maintenance base at Red Deer, Alberta, run by Joe's other son, Rod McBryan. Engine parts are plentiful, and the airframe is easy to maintain."

Curtiss Commando C-FAVO was having some major work done on the starboard engine under the leadership of engineer,

James Dwojak. He revealed that C-46 C-GTPO, parked on the ramp nearby, was becoming a 'spares queen', due to difficulties obtaining replacement parts for the type. Sistership C-GTXW was busy supplying freight to settlements in the North, departing early each day.

The flights these old aircraft operate are very much a lifeline for communities and mining operations that have no road links, especially in the winter. Readers may recall one of the *Ice Pilots* NWT episodes about

Above: A rare Fleet 80, CF-DQJ, hangs from the ceiling in the Buffalo Airways hangar, above Lockheed Electra C-GXFC. The Electra is an ex-Atlantic Airlines machine and still wears the basic livery of its former operator as well as the Union flag.

Below: Commando C-FAVO awaits its next load of freight at Yellowknife. The aircraft is used to haul large quantities of cargo to some of Canada's remotest settlements.







Above: **Canadair CL-215 C-FAYN is one of several examples Buffalo Airways uses for firefighting work.**

Below: **The passenger waiting area at Buffalo's Yellowknife hangar doubles up as a museum.**

Buffalo keeping a community supplied with food and essentials completely by air while the local ferry was out of service. As a result, the people of the NWT have a great respect for Joe and his team. Mikey explained: "Buffalo provide a service at the lowest possible cost. If Buffalo disappears, they will have to rely on more modern aircraft and costs will rise substantially, so they will have to pay more. As far as cargo is concerned, it's a 'Cinderella service' and rarely will a brand new cost-effective airplane be available. Buffalo will never have new aircraft. We are just waiting for the military to finish with their Hercules." Some second-hand C-130s have come on to the market but their price is still too high, however when significantly more are retired by the military the increased number available is likely to lower their value.

## HAULING FREIGHT

There is a regular freight flight on the Yellowknife to Hay River route, which during the author's visit was operated by DC-3 freighter C-FLFR, the only aircraft in the fleet that takes skis. The company had flown a daily scheduled passenger run on this same route (but starting from Hay River) which was known as the 'Sked'.

Dakota C-GWZS was normally used on the Sked and is an historic aircraft in its own right. Like all of the airline's Dakotas it is an ex-Royal Canadian Air Force/RAF example and took part in the D-Day landings, in addition to Operation Varsity, the airborne assault over the Rhine in early 1945.

Pilot for the author's flight on the Sked was Joe, with Sam Storm as co-pilot. Mikey explained that since 1982, Joe has flown about 80% of the scheduled flights and is

probably the most experienced DC-3 pilot of all time: "Two sectors of 50 minutes per day for 300 days per year average over 32 years – that is over 16,000 hours."

As Joe warmed the engines, the passengers were escorted across the apron by Mikey, who was joining the flight to pick up a much-loved car in Hay River. He sat in the jump seat behind Joe. "I must have spent almost half my youth in this seat," he admitted. At the time of the author's visit, locals could buy a book of ten tickets for C\$130, part of Joe's commitment to help his local customers. One of the passengers on board, a lady who flew almost daily, said: "He is much revered doing a lot for local underprivileged families, often flying them at reduced rates, or even for free if it is an emergency." As a young pilot in the 1970s, he had once helped a nurse deliver a baby during a flight.

The flight cruised at 6,000ft over Great Slave Lake and half way through Joe came out to chat to the passengers, part of his 'personal touch'. Refreshments, in the form of biscuits and cold drinks or coffee, were offered by Aaron, a 'rampie' acting as steward. There was a friendly family feel to the flight, reminiscent of times gone by – the early days of post-war flying all over again. Your writer's first flight was in a BEA 'Pionair' Class DC-3 in 1955, so it was just like I remembered. It was a joy to sample the sights and sounds of flying on this classic type during the 45-minute flight.

The following morning the sun was shining at Hay River. Passengers were checked onto the return flight by Joe's daughter, Kathy, and their bags weighed. Joe was chatting to the passengers again, and offering his car to take an elderly veteran the few miles into Yellowknife at the other end.

Buffalo has ten Douglas DC-4s, two of which are operational. These are mainly used for carrying freight to northern





outposts and Canadian Forces Station Alert, the most northerly permanently inhabited location in the world, just 508 miles (817km) from the geographic North Pole. In addition to its 'piston pounders', Buffalo has a fleet of six Lockheed L-188 Electra freighters, as well as the newly acquired C-FIJX which is fitted out as a fire-bomber. Also, used for firefighting are eight Canadair CL-215s. The carrier also operates a fleet of small twins, mostly from the Beechcraft stable, including Queen Air C-FGCE, Baron C-GYFM and Travel Air C-GIWJ marked 'Airtanker 7 Birdog'. These are used as fire-spotters and as crew transport for engineers in case of emergencies. Suspended from the roof of its Yellowknife hangar is a rare Fleet 80 CF-DQJ, and Joe has his 'pet' aircraft, Noorduyn Norseman CF-SAN on floats at Hay River.

## LOOKING FORWARD

What of the future for Buffalo Airways? Mikey was asked if Buffalo had considered the Basler BT-67 turbo conversion of the Dakota. "Basler have taken a great airplane and improved it, but their market, aimed at polar work, survey and gunships, is more sophisticated than ours," he explained. "Buffalo is doing 'bread and butter' work. Basler will be making money in the 2040s; it is unlikely DC-3s will be doing that, though some will still be flying as museum pieces."

The accident involving C-46 Commando C-GTXW occurred when the 1944-vintage aircraft was operating a freight flight from Yellowknife to Norman Wells. The aircraft's right engine was losing oil and there was a propeller overspeed, so the prop was feathered. Because the aircraft lost height when the engine was shut down, the crew diverted to Déline. They determined that the drag caused by the lowered landing gear would increase descent rate and they would not make it to the runway. Consequently, it was decided to belly land the aircraft on the runway, it then ran off the end. Nobody was hurt and the crew evacuated safely, but the aircraft was destroyed. Initial findings indicated the oil scavenge pump had



Above: Passengers take their seats on board C-GZWS for one of the flights the author experienced with Buffalo Airways.

Below: Buffalo 'Dak' C-FLFR taxis in at Hay River on the daily freight flight during the author's visit in July. All photos Ken Cothliff unless stated

failed. The fleet is now down to two C-46 Commandos.

During the suspension First Air continued to fly the Yellowknife to Hay River route as it has over previous years, operating it with an ATR 42 aircraft.

Buffalo Airways engaged aviation safety consultant, Sol Taboada of DTI Training to help liaise with Transport Canada, and its AOC was subsequently restored on January 12, only for freight. Joe McBryan has agreed to step away from the day-to-day running

of the airline; however, it is likely he will continue to work as DC-3 pilot – after all, it's in his blood.

Buffalo plans to resume the daily Sked between Hay River and Yellowknife and is hopeful of having the service back up and running by the summer, although details are still to be finalised. Throughout this setback, the communities the airline serves have supported the company because for them Buffalo is more than just an airline, it is a lifeline. **AN**





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# AIRSHOW NEWS



## French Support for RIAT

A new French Air Force Rafale C display pilot, Capitaine 'Marty' Martinez, will perform at the Royal International Air Tattoo (RIAT) this summer. He will be joined by the Ramex Delta Tactical Display team which is returning with its two Mirage 2000Ns. RIAT takes place at RAF Fairford, Gloucestershire, between July 8 and 10.

SIRPA AIR

## Dutch Hunters to Sit Out 2016 Season

Leeuwarden-based Dutch Hawker Hunter Foundation (DHHF) will not participate in the 2016 airshow season due to the type's continued grounding by the UK Civil Aviation Authority (CAA).

The team's two Hunters are both on the British Register – G-BWGL and G-KAXF – and so are subject to the grounding order issued by the CAA in the wake of last summer's Shoreham Airshow disaster, which claimed the lives of 11 people.

In a statement on its website, the DHHF says it expects to be able to fly in the second quarter of the year once the Air Accidents Investigation Branch (AAIB) has released its final report on the Shoreham incident. It says once the aircraft are cleared to fly again, the team's first priority will be to send them for maintenance in Wales.

## Oshkosh to Celebrate USCG Aviation Centenary

One hundred years of United States Coast Guard (USCG) aviation will be recognised at EAA AirVenture Oshkosh 2016.

The event, at Wittman Regional Airport in Oshkosh, Wisconsin, from July 25 to 31, has been designated as one of the USCG's official aviation centennial events during 2016.

"The centennial of Coast Guard aviation allows EAA to focus on a branch of the service that is often under-represented in many airshows, but should rightly be recognised for its dedicated work to protect our country and save lives every day," said Rick Larsen, EAA's Vice President of Communities and Member Programs, which co-ordinates features and attractions at AirVenture.

The anniversary will be celebrated throughout the week-long event, with many of the activities focused on Thursday, July 28. The day's events will include a large contingent of Coast Guard aircraft, both fixed-wing and helicopters.

## Airshow Charges Changes

The UK Civil Aviation Authority (CAA) will phase in its new airshow charges following consultation with the industry.

Airshow organisers had criticised the CAA's proposed changes (*Aviation News* April 2016, p4), which would have left some events facing significantly higher costs.

The CAA justified the new costs, saying it had been significantly under-recovering its own costs when regulating flying displays and issuing Display Authorisations and Low Flying Permissions.

In a statement posted on its website, dated March 18, the CAA said: "The CAA is not funded by the taxpayer and therefore these charges must be met by the industry. However, the CAA has recognised the possible and immediate impact these increased charges could have on airshow

organisers and has therefore implemented a phased introduction of the new fees over the next three years.

"While needing to ensure that the new charges are in place, to enable us to introduce these important new safety measures this year, we recognise it may be difficult for some airshows to absorb these additional charges in 2016/17"

As a result, it has decided to phase in the new fees for air display post-event charges. The 2016/2017 charges will now be set to recover £100,000 of the expected £200,000 of additional costs, with the remaining £100,000 being absorbed by the CAA.

Andrew Haines, CEO of the CAA, said: "We understand that people care passionately about airshows and we want all events to be a success. We are also very clear that we

will not compromise on safety. Enhancing the safety of airshows is essential and this extra work must be funded.

"However, we have listened to the responses and recognise that some shows could face challenges in absorbing the full cost of these changes into this display season. In making our final decision on fees we have, therefore, decided to phase in the new charges, recovering only half of our costs for the current year.

"In addition to the phased introduction of new fees, we will also review any further requests for assistance from smaller and charitable airshow organisers who are concerned about not being able to afford the new charges."

The CAA's air display review continues and it expects to publish its final report shortly.





**Hawker Hurricane Mk I G-HUPW/R4118** is set to appear at the Shuttleworth Collection's Season Premiere Airshow on **May 8**. AirTeamImages.com/Derek Pedley

## UK DATES

### APRIL

**30-May 01 Sywell, Northamptonshire:** Atomic Vintage Festival – 020 8566 5226 [www.atomicfestival.co.uk](http://www.atomicfestival.co.uk)  
**30-May 01 Popham, Hampshire:** Microlight Trade Fair – [www.popham-airfield.co.uk](http://www.popham-airfield.co.uk)

### MAY

**01 Abingdon, Oxfordshire:** Abingdon Air and Country Show – 07769 689823 [www.abingdonairandcountry.co.uk](http://www.abingdonairandcountry.co.uk)  
**08 Old Warden, Bedfordshire:** Shuttleworth Collection Season Premiere Airshow – 01767 627927 [www.shuttleworth.org](http://www.shuttleworth.org)  
**08 Popham, Hampshire:** Vans RV Fly-in – [www.popham-airfield.co.uk](http://www.popham-airfield.co.uk)  
**21 Old Warden, Bedfordshire:** At Home with Shuttleworth – 01767 627927 [www.shuttleworth.org](http://www.shuttleworth.org)  
**22 Popham, Hampshire:** LAA Andover Strut Fly-in – [www.popham-airfield.co.uk](http://www.popham-airfield.co.uk)  
**28 Bruntingthorpe, Leicestershire:** Cold War Jets Open Day – 0116 279 9300 [www.bruntingthorpeaviation.com/open-days](http://www.bruntingthorpeaviation.com/open-days)  
**28 Durham Tees Valley Airport, Darlington:** Skylive Airshow – [www.skyliveevents.co.uk](http://www.skyliveevents.co.uk)  
**28-29 IWM Duxford, Cambridgeshire:** American Air Show – 01223 835000 [www.iwm.org.uk](http://www.iwm.org.uk)

## EUROPE

### APRIL

**20-23 Friedrichshafen Airport, Germany:** Aero Friedrichshafen – [www.aero-expo.com](http://www.aero-expo.com)  
**23-24 Red Bull Ring, Spielberg, Austria:** Red Bull Air Race – [www.redbullairrace.com/en\\_GB/event/spielberg-2016](http://www.redbullairrace.com/en_GB/event/spielberg-2016)  
**30-May 01 Plasy, Czech Republic:** Plasy Air Day – [www.denvevzduchu.cz](http://www.denvevzduchu.cz)

### MAY

**01 Cuatro Vientos, Spain:** Fundación Infante de Orleans Flight Demonstration Day – [fio.es/Exhibiciones.html](http://fio.es/Exhibiciones.html)  
**09 Moscow, Russia:** Great Patriotic War Victory Day Parade

**14-15 A  rodrome de Cerny, La Fert   Alais, France:** Meeting A  rien – [www.ajbs.fr](http://www.ajbs.fr)  
**19-21 Crocus Expo, Moscow, Russia:** HeliRussia – [www.helirusia.ru/en](http://www.helirusia.ru/en)  
**20 Zaragoza AB, Spain:** NATO Tiger Meet Spotters Day – [www.natotigers.org](http://www.natotigers.org) – NOTE: visitors must pre-register  
**20-21 Bydgoszcz, Poland:** Air Fair – [www.airfair.pl](http://www.airfair.pl)  
**21 Muret-Lherm, France:** Airexpo – [www.airexpo.org](http://www.airexpo.org)  
**21-22 Grossenhain, Germany:** Grossflugtage – [www.grossflugtage.de](http://www.grossflugtage.de)  
**21-22 Meaux-Esbly, France:** F  te A  rienne du Centenaire Marne 1914-18 – [lesaillesdupaysdemeaux.jimdo.com](http://lesaillesdupaysdemeaux.jimdo.com)  
**22 Biscarrosse, France:** Flying Spirit – [www.hydravions-biscarrosse.com/#/meeting/cbii](http://www.hydravions-biscarrosse.com/#/meeting/cbii)  
**24-26 Palexpo, Geneva International Airport, Switzerland:** EBACE – 2016 European Business Aviation Convention and Exhibition – [ebace.aero](http://ebace.aero)  
**26-29 Kehl-Sundheim, Germany:** Kehler Flugtage – [www.kehrer-flugtage.de](http://www.kehrer-flugtage.de)  
**28-29 Pardubice, Czech Republic:** Aviation Fair – [aviatickapout.cz](http://aviatickapout.cz)  
**29 BA110 Creil, France:** Meeting de l'Air – [www.meetingdelair.fosa.fr](http://www.meetingdelair.fosa.fr)  
**29 Volkel village, The Netherlands:** Volkel in de Wolken – [www.volkelindewolken.nl](http://www.volkelindewolken.nl)

### JUNE

**01-04 ExpoCenter Airport, Berlin, Germany:** ILA Berlin Air Show 2016 – [www.ila-berlin.com](http://www.ila-berlin.com) – NOTE: Public days June 03-04  
**02-04 Pontoise-Cormeilles, France:** France AirExpo Paris – Salon de l'Aviation G  n  rale – [www.franceairexpo.com](http://www.franceairexpo.com)  
**03-05 Friedrichshafen, Germany:** Klassikwelt Bodensee – [www.klassikwelt-bodensee.de](http://www.klassikwelt-bodensee.de)  
**04-05 BA125 Istres, France:** Meeting de l'Air – [www.meetingdelair.fosa.fr](http://www.meetingdelair.fosa.fr)  
**05 Cuatro Vientos, Spain:** Fundaci  n Infante de Orleans Flight Demonstration Day – [fio.es/Exhibiciones.html](http://fio.es/Exhibiciones.html)  
**10-11 Leeuwarden AB, The Netherlands:** Royal Netherlands Air Force Days – [www.defensiedagen.nl/luchtmaachtdagen-2016](http://www.defensiedagen.nl/luchtmaachtdagen-2016)  
**11-12 Compi  gne-Margny, France:** Meeting A  rien – Compi  gne A  ro Classic – [www.cercledesmachinesvolantes.com/](http://www.cercledesmachinesvolantes.com/)

**11-12 Kjeller, Norway:** Airshow Kjeller – [flydagen.no](http://flydagen.no)  
**17-18 Meiringen AB, Switzerland:** 75th Anniversary of Meiringen Air Base – [www.lw.admin.ch/internet/luftwaffe/de/home/verbaende/einsatz\\_lw/flpl\\_kdo\\_mei/75jahreflpl.html](http://www.lw.admin.ch/internet/luftwaffe/de/home/verbaende/einsatz_lw/flpl_kdo_mei/75jahreflpl.html)  
**17-19 Kerb-Gelnhausen, Germany:** Flugplatz-Kerb Air Show and Fly-in – [www.flugplatzkerb-gelnhausen.de](http://www.flugplatzkerb-gelnhausen.de)  
**18-19 BA702 Avord, France:** Meeting de l'Air – [www.meetingdelair.fosa.fr](http://www.meetingdelair.fosa.fr)  
**18-19 Henri Coanda International Airport, Bucharest, Romania:** Bucharest International Air Show – [bias.aero](http://bias.aero)  
**18-19 Kuopio, Finland:** Tour de Sky 2016 – [www.tourdesky.fi](http://www.tourdesky.fi)  
**18-19 Leszno, Poland:** Leszno International Air Picnic – [piknikszybowcowy.pl](http://piknikszybowcowy.pl)  
**19 Skrydstrup AB, Denmark:** Danish Air Show – [www.danishairshow.dk](http://www.danishairshow.dk)  
**25-26 Florennes AB, Belgium:** Belgian Air Force Days – [www.belgianairforcedays.be](http://www.belgianairforcedays.be)  
**25-26 Motril seafont, Spain:** Festival A  reo Internacional de Motril – [www.aaao.es](http://www.aaao.es)

## NORTH AMERICA

### APRIL

**22-24 Langley AFB, Virginia:** Air Power over Hampton Roads – [www.airpoweroverhamptonroads.com](http://www.airpoweroverhamptonroads.com)  
**23 Municipal Airport, Burnet, Texas:** Bluebonnet Air Show – [www.bluebonnetairshow.com](http://www.bluebonnetairshow.com)  
**23 Ohio River, Louisville, Kentucky:** Thunder over Louisville – [thunderoverlouisville.org](http://thunderoverlouisville.org)  
**23-24 NAS JRB Fort Worth, Texas:** Air Power Expo – [www.airpowerexpo.com](http://www.airpowerexpo.com)  
**23-24 Regional Airport, Vidalia, Georgia:** Vidalia Onion Festival Airshow – [www.vidaliaonionfestival.com](http://www.vidaliaonionfestival.com)  
**24 Half Moon Bay Airport, California:** Pacific Coast Dream Machines – [www.miramarevents.com/dreammachines](http://www.miramarevents.com/dreammachines)  
**29-May 01 Chino Airport, California:** Planes of Fame Airshow – [planesoffame.org](http://planesoffame.org)  
**29-May 01 MCAS Cherry Point, North Carolina:** MCAS Cherry Point Air Show – [www.cherrypointairshow.com](http://www.cherrypointairshow.com)  
**30-May 01 Barksdale AFB, Louisiana:** Barksdale AFB Air Show – [www.barksdaleafbairshow.com](http://www.barksdaleafbairshow.com)  
**30-May 01 Atlanta Regional Airport, Peachtree City, Georgia:** WWII Heritage Days – [wwiidsays.org](http://wwiidsays.org)



## MAY

**06-08 Draughton-Miller Central Texas Regional Airport, Temple, Texas:** Central Texas Airshow – [www.centraltexasairshow.com](http://www.centraltexasairshow.com)  
**06-08 Valdez Airport, Alaska:** Valdez Fly-in and Air Show – [www.valdezflyin.com](http://www.valdezflyin.com)  
**07 Regional Airport, Manassas, Virginia:** Manassas Airshow – [manassasairshow.com](http://manassasairshow.com)  
**07 Municipal Airport, Paso Robles, California:** Warbirds, Wings and Wheels – [www.ewarbirds.org/www8/index.html](http://www.ewarbirds.org/www8/index.html)  
**07-08 Fort Lauderdale beach, Florida:** Fort Lauderdale Air Show – [fortlauderdaleairshow.com](http://fortlauderdaleairshow.com)  
**07-08 Lincoln Airpark, Nebraska:** Guardians of Freedom Airshow – [www.lincolnairshow.com](http://www.lincolnairshow.com)  
**11 Municipal Airport, Cape Girardeau, Missouri:** Cape Girardeau Regional Air Festival – [www.capegirardeauairfestival.com](http://www.capegirardeauairfestival.com)  
**14 Municipal Airport, Corsicana, Texas:** CAF Coyote Squadron Airshow 2016 – [www.coyotesquadron.org](http://www.coyotesquadron.org)  
**14 Redlands Airport, California:** Hangar 24 Airfest – [www.hangar24airfest.com](http://www.hangar24airfest.com)  
**14-15 JB McGuire-Dix-Lakehurst, New Jersey:** JB MDL Open House and Airshow – [www.jbmdlspicalevents.com](http://www.jbmdlspicalevents.com)  
**14-15 Spirit of St Louis Airport, St Louis, Missouri:** Spirit of St Louis Airshow – [spirit-airshow.com](http://spirit-airshow.com)  
**14-15 Cox Field, Paris, Texas:** Wings over Paris  
**20-22 Addison Airport, Texas:** Warbirds over Addison – [www.cavanaughflightmuseum.com](http://www.cavanaughflightmuseum.com)  
**20-22 Military Aviation Museum, Virginia Beach, Virginia:** Warbirds over the Beach – [www.militaryaviationmuseum.org/vw2-airshow.html](http://www.militaryaviationmuseum.org/vw2-airshow.html)  
**21 Evans Towne Center Park, Evans, Georgia:** Thunder over Augusta – [thunderoveraugusta.com](http://thunderoveraugusta.com)  
**21 Paine Field, Seattle, Washington:** Paine Field Aviation Day – [www.paineairport.com/198/Paine-Field-Aviation-Day](http://www.paineairport.com/198/Paine-Field-Aviation-Day)  
**21 Museum of Flight, Seattle, Washington:** American Heroes Air Show – [www.heroes-airshow.com/events/seattle](http://www.heroes-airshow.com/events/seattle)  
**21-22 Arnold Palmer Regional Airport, Latrobe, Pennsylvania:** Westmoreland County International Airshow  
**21-22 Regional Airport, Lynchburg, Virginia:** Lynchburg Regional Airshow – [www.lyncburgairshow.com](http://www.lyncburgairshow.com)  
**21-22 Municipal Airport, Madera, California:** Central Valley Air Show – [centralvalleyairshow.org](http://centralvalleyairshow.org)  
**21-22 Shaw AFB, North Carolina:** Shaw Air Expo – [www.shaw.af.mil/airexpo](http://www.shaw.af.mil/airexpo)  
**28-29 Cannon AFB, New Mexico:** Cannon AFB Air Show – [www.cannon.af.mil/Home/2016AirShow.aspx](http://www.cannon.af.mil/Home/2016AirShow.aspx)  
**28-29 Regional Airport, Columbia, Missouri:** Salute to Veterans Air Show – [www.salute.org](http://www.salute.org)  
**28-29 Brian Ranch Airport, Llano, California:** "World's Smallest" Air Show – [www.brianranch.com/page0005.html](http://www.brianranch.com/page0005.html)  
**28-29 Sundance Airport, Oklahoma City, Oklahoma:** Discover Aviation and Airshow Spectacular – [sundanceairport.com/discover-aviation](http://sundanceairport.com/discover-aviation)  
**28-29 Jones Beach State Park, Wantagh, New York:** Bethpage Air Show – [bethpageairshow.com](http://bethpageairshow.com)

## JUNE

**01 International Airport, Yarmouth, Nova Scotia:** Yarmouth Air Experience  
**03-04 Skypark Airport, Woods Cross, Utah:** Skypark Aviation Festival and Expo – [www.skyparkutah.com/skypark-aviation-festival2.html](http://www.skyparkutah.com/skypark-aviation-festival2.html)  
**03-05 Regional Airport, Reading, Pennsylvania:** Mid-Atlantic Air Museum World War II Weekend – [www.maam.org/maamwwii.html](http://www.maam.org/maamwwii.html)  
**04 Hemet-Ryan Airport, Hemet, California:** Hemet-Ryan Air Show – [www.hemet-ryanairshow.org](http://www.hemet-ryanairshow.org)  
**04 Southport Airport, Portage La Prairie, Manitoba:** Air Show  
**04-05 Anoka County Airport, Blaine, Minnesota:** Discover Aviation Days – [www.discoveraviationdays.org](http://www.discoveraviationdays.org)  
**04-05 Clow International Airport, Bolingbrook, Illinois:** Cavalcade of Planes – [www.cavalcadeofplanes.com](http://www.cavalcadeofplanes.com)  
**04-05 Kirtland AFB, New Mexico:** Kirtland AFB Open House and Airshow  
**04-05 Smyrna Airport, Tennessee:** Great Tennessee Air Show – [www.greattennesseearshow.com](http://www.greattennesseearshow.com)



The world of aviation descends on Germany for the ILA Berlin Air Show from June 1 to 4. AirTeamImages.com/Felix Gottwald

**11 Regional Airport, Claremore, Oklahoma:** Claremore Airshow  
**11 Dillon Reservoir, Colorado:** Highest Air Show on Earth  
**11 Military Aviation Museum, Virginia Beach, Virginia:** Flying Proms – [www.militaryaviationmuseum.org/flying-proms.html](http://www.militaryaviationmuseum.org/flying-proms.html)  
**11-12 CFB Borden, Ontario:** Armed Forces Day and Air Show – [www.100yearsoffreedom.ca/en/events.html#airshow](http://www.100yearsoffreedom.ca/en/events.html#airshow)  
**11-12 Old Rhinebeck, New York:** History of Flight and WW1 Air Shows – [oldrhinebeck.org](http://oldrhinebeck.org) – NOTE: Repeated every Saturday and Sunday until October 9  
**11-12 Quonset State Airport, Quonset Point, Rhode Island:** Rhode Island National Guard Open House Air Show – [www.riairshow.org](http://www.riairshow.org)  
**11-12 Hancock International Airport, Syracuse, New York:** Syracuse Airshow – [www.syracuseairshow.com](http://www.syracuseairshow.com)  
**15 Québec City, Québec:** Spectacle Aérien des Deux Rives  
**17-18 Indianapolis Regional Airport, Mount Comfort, Indiana:** Warbird Expo – [www.warbirdexpo.com](http://www.warbirdexpo.com)  
**18 Municipal Airport, Boulder, Colorado:** Boulder Airport Day – [boulder.colorado.gov/airport/airport-day](http://boulder.colorado.gov/airport/airport-day)  
**18 Enterprise Airport, Denton, Texas:** Denton Airshow – [www.denton.schultzairshows.com](http://www.denton.schultzairshows.com)  
**18-19 International Airport, Dayton, Ohio:** Vectren Dayton Air Show – [www.daytonairshow.com](http://www.daytonairshow.com)  
**18-19 Regional Airport, Gaylord, Michigan:** Wings over Northern Michigan – [wingsovernorthmichigan.org](http://wingsovernorthmichigan.org)  
**18-19 Hollister Airport, California:** Hollister Airshow – [www.hollisterairshow.com](http://www.hollisterairshow.com)  
**18-19 Ocean City seafont, Maryland:** OC Air Show – [www.ocairshow.com](http://www.ocairshow.com)  
**18-19 Regional Airport, Olympia, Washington:** Olympic Airshow – [olympicairshow.com](http://olympicairshow.com)  
**18-19 Municipal Airport, St Thomas, Ontario:** Great Lakes International Airshow – [greatlakesinternationalairshow.ca](http://greatlakesinternationalairshow.ca)  
**24-26 Detroit River, Michigan:** Tuskegee Airmen Detroit River Days Airshow  
**25 Greater Binghamton Airport, Binghamton, New York:** Greater Binghamton Airshow – [binghamtonairshow.com](http://binghamtonairshow.com)  
**25 County Airport, Greenwood, South Carolina:** Aviation Expo – [www.aviationexpo.net](http://www.aviationexpo.net)  
**25 Spencer J Hardy Airport, Livingston, Michigan:**

Livingston County Airshow – [livingstonairshow.com](http://livingstonairshow.com)  
**25-26 Municipal Airport, Davenport, Iowa:** Quad City Air Show – [www.quadcityairshow.com](http://www.quadcityairshow.com)  
**25-26 Evansville riverfront, Indiana:** ShrinersFest Air Show – [www.hadishrinersfest.org](http://www.hadishrinersfest.org)  
**25-26 Hill AFB, Utah:** Warriors over the Wasatch Utah Air Show – [theutahairshow.com](http://theutahairshow.com)  
**25-26 Municipal Airport, Vero Beach, Florida:** Vero Beach Air Show – [veroairshow.com](http://veroairshow.com)  
**25-26 CFB Trenton, Ontario:** Air Show  
**29-Jul 04 W K Kellogg Airport, Battle Creek, Michigan:** Battle Creek Field of Flight Air Show and Balloon Festival – [www.bcballoons.com](http://www.bcballoons.com) – NOTE: Airshow July 1-4 only  
**30 Gatineau Airport, Québec:** Wings over Gatineau

## REST OF THE WORLD

### APRIL

**23-24 Hood Aerodrome, Masterton, New Zealand:** The Vintage Aviator Ltd Flying Weekend – [thevintageaviator.co.nz/airshows/flying-weekends](http://thevintageaviator.co.nz/airshows/flying-weekends)  
**27-30 Menara Airport, Marrakech, Morocco:** International Marrakech Air Show – [imas-aero.com](http://imas-aero.com) – NOTE: Public day April 30  
**30-May 01 Illawarra Airport, New South Wales, Australia:** Wings over Illawarra Air Show – [wingsoverillawarra.com.au](http://wingsoverillawarra.com.au)

### MAY

**05 MCAS Iwakuni, Japan:** JMSDF/MCAS Iwakuni Friendship Day Air Show – [friendship-day.net](http://friendship-day.net)  
**07 AFB Swartkop, South Africa:** South African Air Force Museum Airshow – [www.saafmuseum.com](http://www.saafmuseum.com)  
**28 Matsieng, Rasesa, Botswana:** Botswana International Air Show – [www.botswana-airshow.com](http://www.botswana-airshow.com)

### JUNE

**02-05 Astana, Kazakhstan:** KADEX 2016 Kazakhstan Defence Expo – [kadex.kz](http://kadex.kz)  
**04-05 Makuhari beach, Chiba, Japan:** Red Bull Air Race – [www.redbullairrace.com/en\\_GB/event/chiba-2016](http://www.redbullairrace.com/en_GB/event/chiba-2016)  
**17-19 Mafikeng Airport, South Africa:** Memorial Fly-in and Airshow – [www.mafikeng-flyingclub.co.za/events/fly-inn-memorial.php](http://www.mafikeng-flyingclub.co.za/events/fly-inn-memorial.php)



Barksdale AFB, Louisiana, hosts its airshow over the weekend of April 30 and May 1. AirTeamImages.com/Bruce Leibowitz

Readers are strongly urged to seek confirmation that shows are definitely taking place before travelling – displays can move location, date or be cancelled, and this guide should only be used as an outline. For more information, check out individual websites, all of which are listed here where possible.



# WIN!

## A DAY WITH THE FIGHTER COLLECTION



**FLYING LEGENDS 2016 AIRSHOW 9-10 JULY**  
**ADVANCE TICKET PURCHASE ONLY**



**GOLD PASS PRIZES PLUS ADULT TICKETS TO FLYING LEGENDS** also up for grabs!

Our friends at The Fighter Collection are giving away to one lucky reader 'A Day with The Fighter Collection' – Get to spend a day with the Fighter Collection team at an IWM airshow, see behind the scenes and the Fighter Collection aircraft up close!

For two lucky runners-up, The Fighter Collection are offering two pairs of Gold Pass prizes to this year's Flying Legends, to be held on 9 and 10 July at Imperial War Museum, Duxford. This year's show is set to be an unmissable event with appearances from over 50 historic aircraft. Each of these historic aircraft is a living tribute to the outstanding skills of the people who designed, built, maintained and flew them in years gone by. Enjoy world class, unrivalled, choreographed displays featuring unique aircraft types rarely seen together in the UK skies or anywhere else.

### HOW TO ENTER

Send your name, address, contact telephone number and email (if you have one) on a postcard or sealed-down envelope to:

**Flying Legends Competition**  
 Aviation News magazine, Key Publishing, PO Box 100,  
 Stamford, Lincolnshire PE9 1XQ

or email the same information to:  
**competitions@keypublishing.com**

with subject header 'AN Flying Legends Competition'.  
 Please state if you would prefer to attend on Saturday or Sunday.

#### ADVANCE/EARLY BIRD TICKET PRICES

<b>Adult</b> 16-59 yrs	<b>£31.05</b>
<b>Senior</b> 60 yrs+	<b>£24.30</b>
<b>Child</b> 5-15 yrs (Under 5s free)	<b>£16.30</b>

Discounts available for group bookings

### EACH GOLD PASS PRIZE INCLUDES:

• **Special Fighter Collection Merchandise** (To collect from FOTFC enclosure at Flying Legends) • **Your individual Gold Passes** • **Gold Car Pass to your VIP parking area** (One car pass per pair) • **Entrance to the Air Show and Museum** • **Viewing enclosure on the flight line** • **A copy of the souvenir programme** • **Free, direct access to the flight line walk**



### WANT TO KNOW MORE....

To book tickets, or for the latest flying programme, visit: [www.flyinglegends.com](http://www.flyinglegends.com)  
 Alternatively, you can book your tickets by calling:  
**+44 (0)1223 499 353**

*All flying subject to weather, serviceability and operational commitments.*

**Gold Pass Available for £80.00 per person per day or £112.50 including a two course buffet lunch.**

**Close Date:** 12.00 GMT 27 May 2016.  
 Winners will be notified no later than Friday 3 June 2016

**There's also the opportunity to win 5 pairs of Adult Tickets worth over £62.00 per pair!**



## BILL LANCASTER: THE FINAL VERDICT – THE LIFE AND DEATH OF AN AVIATION PIONEER

### Book

**Written by: Ralph Barker**

**Price: £19.99**

Captain William 'Bill' Lancaster became what we would now call a celebrity during his career as a record-breaking flyer, which culminated in a much publicised love affair with Jessie 'Chubbie' Miller (nicknamed the 'Australian Aviatrix'). He then achieved notoriety as the defendant in a sensational murder trial in America. Less than a year after his acquittal, his disappearance during an attempt on the London to Cape Town record in 1933, led to suggestions that his ill-prepared last flight had been driven by desperation and perhaps even guilt.

Twenty-nine years later, a French military patrol operating in what is considered to be the epicentre of the Sahara, an area avoided even by the desert's own nomadic tribes, chanced upon the wreck of Bill's Avro Avian and his remains. They also found his perfectly preserved log book in which he had recorded his thoughts, considered his previous life, and stoically faced his death.

His early career, which included a gruelling England-Australia flight, is covered in detail, as is his murder trial in Florida. The tragic story of his fatal record attempt is supported by his moving eight-day diary of slow decline while hoping for the rescue that never came.

Author and former Bristol Beaufort crewman Ralph Barker, who passed away in 2011, was well known as an aviation historian. He wrote many books notable for his ability to weave accurate facts with a fine story-telling style. This one was originally published in 1969 and it is to be hoped that more of his titles will reappear.

*Published by Pen and Sword ISBN 9781473855830 and is available from [www.pen-and-sword.co.uk](http://www.pen-and-sword.co.uk)*



## EUROFIGHTER TYPHOON: ABOVE THE REST – A PICTORIAL HISTORY (2ND EDITION)

### Book

**Written and illustrated by: Geoffrey Lee**

**Price: £25**

This reviewer recalls giving take-off clearance to a Typhoon that got airborne in less distance than a Cessna 150 would, then climbed vertically and pushed over at its cleared altitude of 1,500ft en route to the Southport Air Show. I was deeply impressed. No wonder pilots love what the author calls its "sheer, exhilarating performance".

The book has a superb selection of 422 colour photographs with introductory sections that include test pilots' enthusiastic views on the aircraft, an account of the Typhoon's development, service debut, export success and future upgrades. The photos are interspersed with informative pages of text about the engine, radar and operational capabilities. There is also a listing of squadrons the type is allocated to in the RAF as well as German, Spanish, Italian, Austrian, Saudi and Omani air forces.

Author Geoffrey Lee has been in the business of aviation and commercial photography for over 30 years and his images have appeared in many publications throughout the world. A particularly interesting chapter explains how he captures the stunning air-to-air images by giving a thorough briefing to pilots to outline his requirements. His camera kit is also described in some detail.

*Published by Planefocus Ltd: ISBN 978-955782848, available from [www.planefocus.com](http://www.planefocus.com)*



## AIR VANGUARD 22: USN MCDONNELL DOUGLAS F-4 PHANTOM II

### Book

**Written by: Peter Davies**

**Price: £11.99**

Maintaining the high standards of Osprey's Vanguard titles, an amazing amount of detail is packed into just 66 pages, along with a selection of colour and monochrome photos. Author Peter Davies is well known for his works on modern American combat aircraft and is ably supported in this book by digital artist and illustrator Adam Tooby plus Henry Morshead who created the cutaway art.

The F-4 was first designed as a long-range fleet defender for the US Navy but went on to become one of the greatest multi-role combat aircraft of all time. An operational history section covers use by the US Navy and US Marine Corps in Vietnam.

The Royal Navy Phantoms' fleet defence role is also described and there is coverage of its QRA duties with the RAF in the UK, as well as its ground attack role in the Second Allied Tactical Air Force (2nd ATAF) in West Germany. Here Phantoms were kept on alert carrying live nuclear weapons, ready to respond to a sudden mass attack by Eastern Bloc forces. The heavily modified Spey-engined F-4s operated by the British were the only export variants based on the Phantom used by the US Navy.

It is noted that the F-4 set more World Performance Records (15) than any other military aircraft and it was used by more domestic and foreign air forces than any other type. For those inspired to find out more about the remarkable Phantom, an excellent bibliography is provided.

*Published by Osprey Publishing: ISBN 9781472804952, available from [www.ospreypublishing.com](http://www.ospreypublishing.com)*



## LOCKHEED F-117A NIGHTHAWK 1981-PRESENT: OWNERS' WORKSHOP MANUAL

### Book

**Written by: Paul F Crickmore**

**Price: £25**

The latest in this steadily growing and informative series of Haynes manuals spotlights the world's first operational stealth aircraft that was developed specifically to attack high-value military targets.

Author Paul F Crickmore defines its creators' vision as follows: "If it were possible to develop an aircraft whose radar cross-section (RCS) was so small that it was only likely to be detected at a short distance from the radar head, it would become almost impossible for a SAM emplacement to react in time. The impact on the conduct of future air warfare could be profound if not transformational."

How this was achieved in a lengthy development programme is described in great detail. Given the limited speed and capability of computer systems in the early years of the project, the scale of the challenge faced by the electrical and aeronautical design engineers was enormous. Endless problems had to be solved, especially incompatibilities between aerodynamics and the faceted airframe shapes demanded by radar absorption and deflection. The author describes the basic technicalities of radar and stealth in a very lucid fashion which made it easy to understand.

An 'F-117 at War' section describes the aircraft's use in the Middle East and there is a riveting pilot's account of a strike during the Balkan Wars. 'Maintaining the F-117' is a personal reminiscence by an airman who did just that. There are almost 200 photographs, most of them in colour, along with a cutaway artwork, performance graphs and diagrams of various systems.

This is an excellent overview of a fascinating and groundbreaking aircraft.

*Published by Haynes Publishing: ISBN 978-0857335128, available from [www.haynes.co.uk](http://www.haynes.co.uk)*





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EXCLUSIVE

# STARFIGHTERS AEROSPACE

## SECOND LIFE FOR F-104s



**Luigino Caliaro** reports on the growing fleet of Lockheed F-104s flown by Starfighters Aerospace in a variety of roles.

**M**ore than 60 years after its first flight the Lockheed F-104 Starfighter is still proving its worth. Starfighters Aerospace (SFA) flies this iconic aircraft supporting activities connected with research and development in air and space flight. Indeed, appropriately for an aircraft with a name referring to objects in the universe, the

Starfighters fly from the same runway that Space Shuttles used to touch down on.

It's not by chance that the company has operated since 2007 from NASA's Kennedy Space Center in Florida. Two years later it concluded a special deal with NASA, the Space Act Agreement, to operate aircraft for the global commercial space sector and the scientific community.

*Aviation News* met Rick Svetkoff, Starfighters Aerospace founder and CEO, at the large hangar which houses the company's F-104s. "SFA began its activities as Starfighters Inc, with the aim of restoring and operating three CF-104s for display on the American airshow circuit," he explained.

"In the 1990s our Starfighters were highly appreciated guests at numerous airshows





before the start of the reduction in our participation, which came about because of interesting developments in our activities.

"In fact, because of the particular performance characteristics of the Starfighter, our aircraft have been increasingly involved over the last decade in research activities and as chase aircraft within private industry and government

Above: **A Starfighter outside the hangar at the Kennedy Space Center that is used by the company.** Moreno Aguiari

Main photo: **One of the fleet of F-104s flown by Starfighters Aerospace.** All photos Luigino Caliaro except where stated

programmes – as well as being used as flying targets or simulating ballistic missiles in military exercises where detection and

defence systems are being evaluated."

"Our principal activity is focused on the defence research and development sector, albeit that at the same time we're developing activities specific to training and research in the field of sub-orbital flight. We also developed, with the DOD [Department of Defense], many training programmes, including for electronic warfare, air-to-air ►





Left: One of the company's Starfighters is painted black and carries the name of Dutch firm KANON.

Below: The original scheme worn by the company's F-104s when the Starfighters display team was performing (two of the fleet retain this livery). Some of the infrastructure for what was the Shuttle Landing Facility at the Kennedy Space Center can be seen on the right. NASA/Kim Shiflett



adversary support, missile defence support and weather alert/surveillance.

"Due to the constant increase in activity in these sectors, some years ago we realised our three original Starfighters were not sufficient to respond to the demands; also by virtue of their age. So we approached the Aeronautica Militare [AM/Italian Air Force] in Italy, the final operator of the Starfighter, which had only retired its fleet a few years ago, to acquire a few airframes that were still in good flying condition."

After several years of negotiation, SFA managed to acquire four additional F-104s from Italy in 2011. The purchase contract covered the supply of three two-seat TF-104Gs (MM54251, registered in the US as N990SF, MM54258/N991SF and MM54261/

***"Standard mix profiles and envelopes are possible at speeds of Mach 2.2 in both level and climbing flight regimes and altitudes in excess of 100,000ft."***

N992SF) and single-seat F-104S-ASAM MM6734/N993SF.

Once delivered to the US, the fighters, were subjected to complete airframe and engine overhauls and the installation of the new avionics systems necessary for the scientific work the company had planned. Delays in the certification of some systems, however, meant the 'new' Starfighters' first flights took place only a few months ago – but they should all be operational by the end of the summer.

To best meet the demands of various customer requirements, two of the jets, two-seater N992SF and the single-seater, N993SF, have been painted in a splinter camouflage with different tones of blue and grey. The scheme was designed by



Two of the company's single-seater Starfighters.





Groundcrew work around a Starfighter prior to a sortie. Moreno Aguiari

the Director of Flight Operations, Piercarlo Ciacchi, together with Dario Righetto, Head of Global Communications for Graphistudio in Pordenone, Italy.

Two-seater N990SF retains its original AM all-over grey scheme while N991SF has been painted black and carries on its tail the name of a sponsor, KANON – a Dutch manufacturer of loading equipment which is looking to expand in aerospace.

## DISPLAY TEAM

Rick Svetkoff – formerly a US Navy Douglas A-4 Skyhawk pilot and later a Continental Airlines captain on the MD-80, Boeing 757 and 767 – bought the three Starfighters in 1995 to create a demonstration team

while also using them on behalf of civilian and government organisations. They were a two-seat CF-104D 104632 (the original Canadian serial), N104RB, and a pair of single-seat CF-104Gs, 104850/N104RD and 104759/N104RN. They were joined by a fourth aircraft, a two seat F-104B (s/n 901/B and now with the US registration of N65354 though it is not airworthy) that was the personal aircraft of King Hussein of Jordan.

The team was named Starfighters and air display practice started a few months after taking delivery of the jets. At the time the company was based at St Pete-Clearwater International Airport near Tampa, Florida.

The three fighters were originally operated by the Royal Canadian Air Force

and later passed to the Royal Norwegian Air Force. On retirement they were sold onto the US civilian market in the early 1990s. Svetkoff had them painted in a blue and white livery and they retain the team scheme though CF-104D N104RB now also carries KANON titles

Starting in 1997, Svetkoff began to lead a formation of two aircraft; and before its reduction in airshow participation from 2009 the team performed more than 300 displays. He could call on the extensive experience of Piercarlo Ciacchi, a former AM pilot who flew as a team member of the service's famous Frecce Tricolori aerobatic team. Svetkoff's team is no more but one of the Starfighters did display at the 2015 Tico Warbird AirShow held at the nearby Space Coast Regional Airport in Titusville.

Ciacchi has also flown the F-104S-ASAM and Lockheed Martin F-16ADF Fighting Falcon with 18° Gruppo of 37° Stormo and, with thousands of hours of fast jet time, is ideally suited to fly SFA's wide range of missions.

Another very experienced aviator who flies for SFA as its test pilot is Wolfgang Czaia, who served with the Luftwaffe. A graduate of the US Air Force's Test Pilots School at Edwards AFB, California, he took part in the CL-1200 Lancer project (which was later abandoned) developed by Lockheed to replace the Starfighter.

He has more than 28,000 hours and began his operational flying on the Lockheed F-84F Thunderstreak ground-attack fighter before being assigned to the F-104G and was later an instructor on the type.

After moving to the US, he flew with American Airlines, and from 1992 was the test pilot for a Messerschmitt Me 262 ►

The Starfighter's ability to reach 100,000ft make it ideal to undertake specific test work for the company.







This angle shows off the blue and grey splinter camouflage scheme designed by Starfighters Aerospace's Director of Flight Operations, Piercarlo Ciacchi and Dario Righetto, Head of Global Communications for Graphistudio.



Part of the F-104 fleet owned by Starfighters Aerospace. Note the F-104B at the back that was the personal aircraft of King Hussein of Jordan. It was acquired in a non-airworthy state and is used for spares.

project. He still flies the aircraft, which is owned by the Military Aviation Museum at Virginia Beach.

## IMPRESSIVE PERFORMANCE

Piercarlo Ciacchi explained how the F-104 can still be a valid asset for test flying: "Thanks to its exceptional performance in speed, the Starfighter can claim to be the ideal aircraft for missions in the sub-orbital field. Even today the aircraft is still among the select few that can easily and quickly reach Mach 2, with an impressive rate of climb which is almost comparable with that of a missile.

"The Starfighter is capable of reaching 100,000ft in just a few minutes with a 1,500lb payload. Flight above 70,000ft reflects a ballistic profile which enable the F-104 to reach and release payloads at or near 100,000ft for [launching] lower orbit nano and pico satellites.



The company has four two-seat Starfighters in its airworthy fleet.



"The [type] represents an unmatched vehicle for a vast range of missions and, thanks to its high performance and reliability, is simply the best solution to minimise huge investments and longer timeframes of rocket and conventional vectors. For this kind of mission [it] is not necessary to seek out a sophisticated and complex vehicle [such as the F-15 would be], but rather a piloted aircraft that's an ideal platform for the trials and testing of equipment and sensors for scientific study as well as micro- and macro-gravity experiments.

"Our supersonic jet fleet is well suited to carry payloads located in multiple external stations and internal locations with in-flight live test monitoring from the rear seat. Standard mix profiles and envelopes are possible at speeds of Mach 2.2 in both level and climbing flight regimes and altitudes in excess of 100,000ft."

He added: "The company is engaged in a varied series of activities linked to the scientific and space sectors and, among the programmes we are engaged in, I would like to highlight our collaboration in the development of the Star Lab programme. This is a revolutionary space vehicle conceived for the launch of small dimension satellites, which utilises the Starfighter as the principal launch stage for the rocket.

"Once deployed, this can climb to an altitude of 120km, and then return to Earth using a special parachute, enabling it to be used again. The rocket, besides its payload of sensors, can also release a small-dimension satellite into space orbit. This potential is particularly interesting as the use of an F-104 as the launch vehicle is much less costly than placing the payload into orbit with [solely] a rocket.



The short wings and sleek lines of the Starfighter are evident in this photo. Moreno Aguiari

*"...in the not too distant future, and especially if we are able to finalise a series of contracts, we'll have a requirement to possess additional aircraft."*

"For this reason we've been developing a special pressurised flying suit, given that the launch of the Star Lab requires a climb to very high altitudes, up to 20,000m [65,617ft].

"Another particularly important area in which we have been involved is the study of the presence of micro-organisms, potentially harmful to humans and animals, carried in the huge dust clouds which are taken by air currents from Africa as far as the American coast.

"This study, conceived by Professor Andrew Shuerger of the Institute of Food Science and Agriculture at the University of Florida, proposed the use of a specialised pod with a DART [Dust at Altitude Recovery Technology] sensor taken into the air by a Starfighter, which, thanks to the ability to collect air samples at various altitudes, allows the scientists to accurately analyse micro-organisms and pathogens present in the air. ▶

Starfighters Aerospace has been based at the Kennedy Space Center since 2007. The Massive Vehicle Assembly building can be seen in this photo.







Above: **The unmistakable shape of a Starfighter from below.**

Below: **The impressive capabilities of the Starfighter are being utilised to launch very small satellites into orbit.**

"Besides a further series of classified government programmes, we're also involved in training activities for commercial space programmes. One, designated Pathfinder, sees the Starfighter simulate very realistically the take-off phase, the climb trajectory and the subsequent return through the atmosphere of a commercial space vehicle, exploiting the exceptional rate of climb and speed performance of the Lockheed fighter.

"A further demonstration of the capability of the Starfighter is also provided by the possibility of offering the experience of zero gravity for a much longer time than in other carriers. In fact, the trajectory developed allows the Starfighter to fly a profile which enables a weightless flight time of one-and-a-half minutes, as opposed to the little over a minute possible with the other aircraft involved in this kind of flying."

Svetkoff underlined that Starfighters Aerospace, in its few years of activity, "has demonstrated itself to be a valid asset for the support of research and development in both private and government arenas. Thanks to the Starfighter, firms and agencies can utilise a unique platform for a wide range of tests and research in the panorama of aerospace flying.

"Also, I can happily affirm that the outlook for aircraft is even more interesting, to the point that in the not too distant future, and especially if we are able to finalise a series of contracts, we'll have a requirement to possess additional aircraft."

It seems that the aircraft once dubbed the 'missile with a man in it' has plenty of customers for its impressive capabilities, and will be tearing through the skies for years to come. **AN**





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# SALZBURG AIRPORT W.A. MOZART

## GATEWAY TO THE ALPS

**Aviation News Assistant Editor James Ronayne**  
reports from Austria's second-busiest airport.



**N**estled among the beautiful Austrian Alps, Salzburg Airport W.A. Mozart (IATA: SZG) is an ideal entry point to the country's tourist hotspots, thanks to its central location and excellent transport links. Owned by the Government of Salzburg (75%) and City of Salzburg (25%), it is however run as a private company and receives no public funding.

Most passengers using the airport – named after celebrated composer and Salzburger Wolfgang Amadeus Mozart – are handled via the airport's main terminal. But during the peak ski season it operates a second facility, amadeus terminal 2, which

Dutch carrier Transavia was one of several airlines that served Salzburg during the peak ski season. Transavia's flight to Amsterdam enabled passengers to connect into SkyTeam's network at Schiphol and is part of the Salzburg Airport management's strategy of linking the Austrian city to Europe's major hubs. [AirTeamImages.com/Michael Priesch](http://AirTeamImages.com/Michael.Priesch)

at other times is hired out for functions or advertising campaigns.

This compact and efficient airport handled 1,828,309 passengers during 2015, up 0.5% on the previous year. Scheduled traffic accounted for 1,381,647 passengers, an increase of 4.6%, but charter traffic continued to decline. Alexander Klaus, the airport's PR chief, said: "It's a trend we've seen through the past two or three years. I think it's because the airlines want to be more flexible."

Nicolas Karres, Head of Ramp Services at the airport, echoes that view. "I also think the classical tour operators have tried to reduce their risk," he told *Aviation News*. "What they tend to do is block a certain amount [of seats] within a scheduled airline – and they're sure they can sell that."

"In earlier times we had one tour operator for one aircraft; then we had the trend of one aircraft and several tour operators, [which] has continued, and what we see now is scheduled services."





**An aerial view of Salzburg Airport. To the left of the runway is the terminal and general aviation complex. The dome-shaped buildings on the other side of the airfield are The Flying Bulls' Hangar-7 and Hangar-8.** AirTeamImages.com/Simon Wilson



Klaus also pointed to a change in holidaymakers' booking habits as a reason for the switch to scheduled services: "We can also see a trend where airlines not only provide services on Saturday but also on Thursday or Monday or Friday, because the way of travelling has changed."

"Passengers are not only booking seven days or 14 days; they're booking five days or ten days."

The winter ski season continues to be the airport's busiest period, but it handles a steady stream of traffic during the summer too. During the ski season most of the activity is concentrated on Saturdays whereas during the summer the traffic is more evenly spread throughout the week.

The airport handles between 3,500 and 4,500 people on an average weekday, while on a 'Winter Saturday' the figure is nearly 30,000.

Karres explained: "If we look at movements, we have 30 aircraft a day on average during the week," adding: "On a

'Winter Saturday' we have around 100 to 120. Average seat capacity during the week is around 100 seats; on a 'Winter Saturday' it's around 180 to 200."

To cope with the demand, Karres hires 100 additional ramp staff just to work one day a week throughout the peak season. "The good thing is it's a Saturday, because [we have] people who have normal jobs working Monday to Friday and they just want to earn extra money; maybe they want to buy a new car or go on holiday. So it's quite easy to hire extra staff."

"Around 60 to 65% return from the previous winter and the rest are new staff you have to train. I have one member of staff who is here for his 25th winter."

The airport's firefighters are not full-time but also have jobs in the ramp services team. Because of their need to respond to incidents in seconds, they have to stay within a certain distance of the fire station and use Smart cars to get there in an emergency.

**British Airways Airbus A320-232 G-GATS awaits its passengers for the return journey to London Gatwick Airport.** All photos Key-James Ronayne unless stated







Baggage is scanned and sorted prior to being taken to the aircraft outside.

Passengers wait to check in for their flight in Terminal 1.

## FACILITIES

The airport has undertaken several major building projects in recent years. The most visible – and expensive – is the new control tower which cost €14m. Another €9m was spent on the air traffic control equipment.

Refurbishing the road traffic tunnel under the runway cost the airport another €9m recently. The work was carried out at night when traffic was lighter, minimising the impact on the local neighbourhood.

Resurfacing work has meanwhile been carried out on the airport's taxiways, and the runway is set to follow. Klaus revealed: "It will be a project within the next six years. We have an old runway with good, old concrete, not asphalt. The new runway will be built not with concrete but with asphalt."

On the northeastern side of the site, a

business park has been constructed which the airport leases out to companies as an additional revenue stream. "It's important for an airport to get money from other projects because you can't earn enough from the aviation side alone," says Klaus.

Other work includes a new power station to meet the airport's energy needs and the refurbishment of offices in the administration building. More offices will be created in the space left by the old control tower.

Adding air bridges to the terminal has also been considered, but Karres says there are concerns they would affect the airport's turnaround times – a crucial factor on 'Winter Saturdays'. "In my opinion, the quickest way to load and unload an aircraft is to use both doors."

Passengers therefore have to walk out

to the aircraft, and the airport has invested in covered air stairs to give them some protection from bad weather. Landside, covered walkways ensure passengers can avoid the elements when walking from the terminal to the car parks.

In a nod to its heritage, at the southwestern end of the main ramp the airport has a replica of its original terminal on display, alongside a preserved Douglas DC-3 Dakota, N86U (actually a C-47A), in retro Austrian Airlines livery.

## OPERATORS

Last year the airport welcomed new services to its schedule, including easyJet's four-times-a-week offering to Hamburg and Scandinavian Airlines' Saturday service to Oslo.



Overcast skies greet this Austrian Airlines Fokker 100 as it enters the final stages of its flight from Frankfurt.





Flight Charter Linz Diamond DA42 OE-FCL taxis out after a brief visit. General aviation accounts for a significant proportion of Salzburg's movements.

Turkish Airlines increased the frequency of its flights from Istanbul Atatürk Airport to ten times a week and airberlin added an additional daily rotation to its Düsseldorf connection. This past winter, British Airways flew to Salzburg from both Gatwick and Heathrow; the former is year-round while the LHR service was for the season only, although the airport is hopeful of extending it. BA also flies to Salzburg from Edinburgh and Glasgow, with Jet2, Monarch Airlines, Thomson Airways, easyJet and Ryanair also linking the city to the UK.

Turkish Airlines, one of SZG's most important carriers, is expected to increase its frequency to two flights a day by the end of this year. The Istanbul link enables travellers to access the carrier's impressive network of 200-plus destinations worldwide. More than

80% of passengers departing from Salzburg with Turkish Airlines connect to other flights via Istanbul, mostly medium and long-haul services.

Key to Salzburg's strategy is its links with Europe's major hub airports. Star Alliance's hubs at Frankfurt, Istanbul and Vienna are all served from here, while British Airways links the airport into oneworld's London hub. During the winter season Transavia's flights to Amsterdam mean travellers can take advantage of SkyTeam's network from the Dutch city.

"In earlier days an airport had to have a hundred destinations – that was a good airport," says Klaus. "Nowadays you don't need to have a hundred destinations: you need to have hubs. The most important thing for our airport is the strength of our

hub destinations – an important part of our strategy."

At 5,741ft (1,750m) with a 984ft (300m) overrun, Salzburg's runway is too short to accommodate long-haul services itself. It's also restricted by only having an ILS on Runway 15 because of the mountains at the 33 end.

Despite this, Karres revealed that about 40 to 45% of aircraft land on Runway 33, adding: "It's a visual approach which most pilots love to fly because it's out of their normal domain."

Salzburg does have a required navigation performance (RNP) approach at the Runway 33 end, but Klaus says only a handful of the airport's operators have the equipment installed on their aircraft to be able to use it.

Salzburg has always been well known ►





Right: **Glorious winter sunshine bathes Niki Airbus A320 OE-LEF as it rests between flights on the ramp at Salzburg.**

Below right: **S7 Airlines linked Salzburg with Moscow Domodedovo this winter.**  
AirTeamImages.com/Michael Priesch

among aviation enthusiasts for the amount of Russian traffic it attracted during the peak ski season. As economic sanctions have taken their toll, the situation has changed recently, with visitor numbers from Russia well down. "In 2013 we had 55,000 passengers coming from Russia," said Klaus. "In 2014 we had 38,000 passengers and in 2015 – please don't ask. The people living there have to pay double the price they paid for their holiday the year before.

"I can remember the time when the British pound was 'in the cellar' – [British] people didn't fly to Salzburg. Two years later that figure is rising again." Klaus believes an easing of international tensions will lead to Russians returning to Salzburg in numbers.

Despite the demise of Transaero – which used to regularly visit the airport with Boeing 747-400s during the ski season – and the general downturn in Russian traffic, several carriers still fly to Salzburg, including S7 and Ural Airlines.



Scandinavia was a strong market for the airport this winter and the UK is another key destination – Karres describing it as "stable" – while Germany accounts for around 700,000 business and leisure passengers a year.

Global companies like PALFINGER, Red Bull, Aldi and Mercedes have offices in Salzburg, boosting the airport's business traveller numbers. Klaus said: "We have a lot of business people coming from the German airports to Salzburg. It's very convenient for people to have an airport connecting to the whole world on their doorstep."

Klaus is expecting this year to be one of consolidation, with no major changes to the route network, noting: "I think the new ones [routes] will come in 2017 or 2018 – 2016 will be a quiet year."

## GENERAL AVIATION

Throughout the year Salzburg welcomes significant numbers of general aviation (GA) aircraft, whether it's the wealthy flying in for skiing or high-level executives visiting on business.

The airport is also home to several flight training schools, adding to the GA movements. While charter and scheduled services account for around 18,000 movements, the GA figure is almost double that at about 38,000.

Based operator Air Link provides private jet charter services from the airport and fractional firm NetJets is a frequent visitor. "We've also got business jets here from Mercedes, PALFINGER and Kaindl, [companies] that have factories as far away as China. [These are] global players that have their aircraft based here," said Karres.

Adding to those are the aircraft of The Flying Bulls, the aviation arm of world-renowned energy drinks firm Red Bull. The company's fleet of executive jets, warbirds and helicopters is based in the impressive Hangar-7 and Hangar-8 on the far side of the runway, which Klaus calls "a little airport at the airport".

Salzburg Airport W.A. Mozart is perfectly positioned for anyone wanting to explore the surrounding lakes and mountains, or visitors to the global brand firms based in the city. Its links to Europe's biggest hubs should ensure it continues to prosper. **AN**

Left: **The airport's new control tower cost €14m to construct, with a further €9m spent on air traffic control equipment.**





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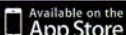
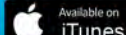
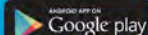
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# VIEWING AREA GUIDE



**AIRPORT: SALZBURG AIRPORT W.A. MOZART**  
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Salzburg Airport's viewing terrace offers superb close up views as **Assistant Editor James Ronayne** found out.

Above: **Airberlin Bombardier Dash 8-Q400s** are regular visitors to **Salzburg**. All photos Key-James Ronayne

Below: **Information boards on the terrace, detailing the types of aircraft to be seen at the airport, are in German and English.**



Salzburg, Austria's second-busiest airport, is renowned for its charter traffic during the winter, bringing skiers and snowboarders from around Europe. The best day to see this is a Saturday and, while the days of numerous Russian Tupolevs and Ilyushins are long gone, there's still an interesting variety on offer on a 'Winter Saturday'.

From late December until the end of March a number of Russian carriers visit the airport, albeit using Western equipment, as well as a healthy mix of European scheduled and charter operators.

Located on top of Terminal 1, the open air visitors terrace affords excellent views of the main ramp and runway. Photographers will be delighted to learn the terrace is glass-free and photo opportunities of aircraft parked on the main ramp are excellent thanks to their close proximity and the elevated view – a Bombardier Dash 8-Q400 parked on the near stands requires just 80mm focal length and an Airbus A320 parked on the far side of the main ramp requires 120mm.

Although the runway runs directly in front of the terrace, a combination of lampposts and parked aircraft means taking good photos of arriving or departing traffic is extremely difficult. Photographing a Boeing 737-800 on the runway calls for a focal length of around 240mm.

The Flying Bulls' Hangar-7 and Hangar-8 complex on the far side of the airport is visible, but too far away for good photographs and the general aviation ramps are obstructed by airport buildings and trees (although some business jets are partially visible through the gaps).

The terrace is good for photography from noon until sunset and,

**The terrace affords excellent views of the main apron and runway**









# NATIONAL TREASURE

## B-17G SENTIMENTAL JOURNEY BRINGS HISTORY TO LIFE

**Joe Copalman** tells the story of a Flying Fortress that is regularly seen on the North American airshow circuit.



**F**ew aircraft are as iconic or easily identifiable as the Boeing B-17 Flying Fortress. It was a symbol of American technological and industrial might during World War Two and – for many looking skyward in Nazi-occupied France and Belgium – a symbol of hope and liberation.

Nearly 13,000 B-17s were built, with wartime demand exceeding Boeing's capacity to produce them to such an extent that competitors Lockheed and Douglas were put

to work building Flying Fortresses for the US Army Air Forces (USAAF) as well. Douglas alone built 3,000 B-17s (605 'Fs and 2,395 'Gs) at its plant in Long Beach, California.

One of these Douglas-built B-17Gs was serial number 44-85314. It entered service with the USAAF on March 13, 1945 serving in the Pacific for the few remaining months of the war. It never took part in any combat missions as it was flown to a staging area for assignment to a unit, but the war ended before this could happen.

After the war the USAAF placed it into storage in Japan until 1947, after which it served for another 12 years. Its first role was in photo-mapping as an RB-17G at Clark Field in the Philippines and later it was engaged in air-sea rescue from Eglin Field, Florida, as a DB-17G.

In its final military configuration 44-85314 flew as a DB-17P drone controller, serving as an airborne control station for unmanned Flying Fortresses during a series of tests evaluating the blast and thermal



Main photo: **Sentimental Journey** is based at Falcon Field Airport, Arizona. The local passenger flights are typically over the untouched mountain areas of the Fort McDowell Indian Reservation east of Phoenix. Jay Beckman



Left: Permission was sought from Betty Grable's widower to use her likeness for *Sentimental Journey's* nose art, her estate also granted the CAF the rights to the image. All photos Joe Copalman unless stated



effects of atomic weapons on aircraft in flight. It was placed in storage at Davis-Monthan AFB, Arizona, in January 1959 and purchased shortly afterwards for conversion to a fire-bomber by Aero Union when it received the civil registration N9323Z.

After nearly 20 seasons dropping retardant on forest fires throughout the US, Aero Union donated it to the newly formed Arizona Wing of the Confederate Air Force based at Falcon Field Airport in Mesa in 1978.

The wing held a contest to name the aircraft, with the winner being *Sentimental Journey*. CAF leadership contacted Betty Grable's widower for permission to use the starlet's likeness for the nose art and, with that secured, the name and markings were applied that have adorned this B-17 through its CAF career.

When asked what 'SJ' means to CAF Airbase Arizona, current Airbase Leader Dennis Fennessy told *Aviation News*: "It means we exist. This whole museum was

established for that aircraft, and everything here – the hangars, the membership, the other aircraft – grew around it."

The wing built a new hangar in 1985 to house *SJ* during maintenance and to keep it out of Arizona's merciless summer sun. In 1986, the aircraft began a tradition of touring the US and Canada, performing at airshows, giving the public the chance to explore the inside of the aircraft, and – most importantly – giving people the opportunity to pay for a flight aboard a real B-17 bomber. ►



Seen on final approach at Falcon Field, *Sentimental Journey* wears the markings of the 457th Bomb Group, which flew out of RAF Glatton, Cambridgeshire from February 1944 until April 1945.



The experience, including start-up, lasts 30 minutes with 20 spent in the air. A trip in the nose, which accommodates two, costs \$850 per person. The three seats in the waist gunner section and the three in the radio room behind the bomb bay cost \$425 each.

## RESTORING A CLASSIC

Having been well looked after by Aero Union, *SJ* was in excellent condition when the Confederate Air Force (later renamed the Commemorative Air Force. The Falcon Field operation is now CAF Airbase Arizona) received it, but lacked the turrets and guns it had taken to war. The Arizona Wing's members decided to temporarily ground *SJ*

until they could restore it in as close to World War Two configuration as possible.

The CAF stripped and repainted the airframe in the markings of the 457th Bomb Group that was based at RAF Glatton, Cambridgeshire, from February 1944 until April 1945. It was also reskinned where necessary and fitted it with combat equipment, such as a Norden bombsight, a metal (as opposed to fibreglass) chin turret, a ball turret and a top turret.

The top turret assembly is the one feature that CAF claims sets *SJ* apart from all other airworthy B-17s. The CAF acquired it from the owner of a petrol station in Oregon that had an intact B-17 on its roof.

Airbase Arizona's Chief Multi-engine Pilot, Russ Gilmore told *Aviation News*: "We have the whole mechanism inside, all the way to the floor. And we're the only ones that have it." However, this feature is not so sought after as it takes up a lot of room behind the cockpit.

Airbase Arizona's maintenance chief, Larry Pederson, elaborated on the CAF's emphasis on authenticity: "Without the top turret, we could put a couple more seats in there and it would be a lot more comfortable going through it, and a lot less weight. But we feel that it's quite important to keep it all together."

The aircraft wears bomb mission marks



Apart from modern radios and GPS, *Sentimental Journey's* cockpit and controls are much the same as they were in the 1940s, and the aircraft also flies the same. Airbase Arizona's Chief Multi-engine Pilot Russ Gilmore said: "It's really heavy on the controls... but it has big leverage."





**Sentimental Journey** arrived at the CAF as a fire-bomber with no top turret assembly. The CAF tracked one down during the restoration process. A complete top turret was located in Milwaukee, Oregon, where a petrol station proprietor had an intact B-17 on top of his premises.

on the nose with each one representing a city visited on its first North America tour in 1986. The two camera symbols are for two projects it took part in, Steven Spielberg's comedy movie *1941* and a NBC documentary called *All the Fine Young Men* featuring the Eighth Air Force. The aircraft also carries five dummy 500lb general purpose bombs.

## KEEPING LIVING HISTORY ALIVE

As one of only a dozen airworthy B-17s left in the world, and arguably one of the busiest, keeping *SJ* airworthy is a demanding job.

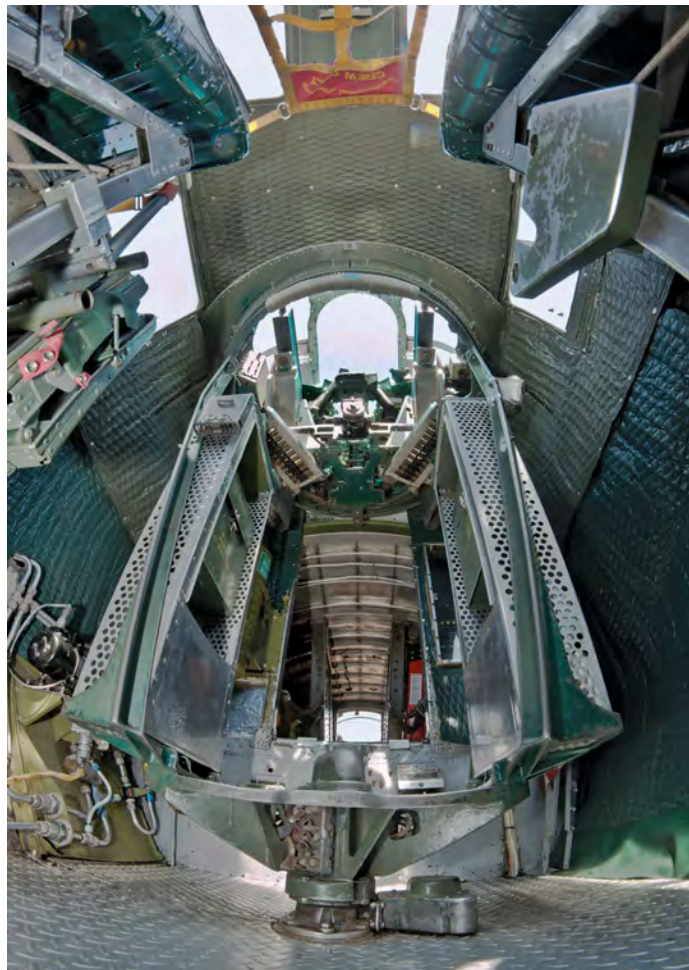
Pederson and his team of airframe and powerplant mechanics, airworthiness inspectors (licensed by the Federal Aviation Administration (FAA), which also sends out its own inspectors) and volunteers who perform maintenance under their guidance, work tirelessly to keep *SJ* in the air.

Their work is especially important when preparing the aircraft for summer tours. While Airbase Arizona has its own machine shop to fabricate items such as panels and other small parts, it relies on several external vendors to service reusable parts.

Pederson said: "We've got some excellent vendors right now and they take good care of us."

With required inspections and periodic maintenance being dependent on elements, including airframe and engine hours, some of that maintenance is inevitably required on tour.

For example, on *SJ*'s most recent North American tour it was due for an inspection



**The top turret internal assembly. More passengers could be carried on revenue flights without this, but the CAF but wants the aircraft to be as authentic as possible.**

at the time it was scheduled to be in Fargo, North Dakota, so Pederson and his team planned in advance to have personnel in Fargo to meet the aircraft and carry out the inspection.

Eighteen pilots at Airbase Arizona are currently cleared to fly *SJ* – seven pilots-in-command and 11 co-pilots. As the Airbase's chief pilot, it is Russ Gilmore's job to keep all

18 current on the B-17.

A pilot training manager during his airline career, Gilmore is ideally suited to the job, especially since much of that career was spent in radial multi-engine types such as the Douglas C-47 and Curtiss C-46 Commando. The fact that most of the CAF's pilots fly for airlines makes Gilmore's job easier. He said: "They're used to the training regimen. The ground school, the training records, everything we do is like an airline-type regimen."

Additionally, Gilmore is one of only a handful of pilots nationwide certified as a vintage aircraft examiner for the FAA.

He explained: "The FAA doesn't have anybody that can do type ratings. We trained a guy 15 years ago from Milwaukee. I gave him his first flying lessons in the B-17, and we got him type rated so he could be a national resource for the FAA, but he's gone now, he retired, and they don't have anybody that can do these airplanes anymore. So now they've

got guys like me that can do it. I can do type ratings and all that."

"As a matter of fact, the FAA just came out on Sunday and observed me doing a check ride in the B-17 on one of our guys. They have to watch me once a year and make sure I'm doing everything that I'm supposed to be doing. And he went away real happy."

When asked to pinpoint his favourite aspect of flying the B-17, Gilmore's response was: "It's a national treasure. It's an honour to be able to fly it and to be entrusted with that responsibility. It's something I take very seriously."

## ON THE ROAD

While *SJ* winters at its home base at Falcon Field Airport the CAF sends it out on the road for the duration of each summer airshow season, visiting an average of 60 cities per year in the US and Canada.

The tours are a great opportunity for the CAF to bring *SJ* to communities that do not have any locally based B-17s, if any warbirds at all.

Kristen Purcell has been a loadmaster on *SJ* for six years and is a veteran of numerous tours.

Purcell said: "It's amazing when we go on tour how many people have a connection to this airplane – their father, their grandfather – someone in their family or someone they know was involved in some way with the B-17"

Though the number of living B-17 veterans is diminishing, several still make the effort to catch *SJ* either at Airbase Arizona or on tour. The CAF also encourages surviving B-17 crew members to sign the insides of ▶





the bomb bay doors, which currently feature the names of over two dozen veterans, the aircraft they served on, numbers of missions they flew, and in many cases the full crew roster for their particular aircraft.

In addition to giving B-17 veterans the opportunity to give their children and grandchildren a better idea of 'what Grandad did in the war', for many, it is far more than that.

The chance to tour the aircraft, assume their former position, or even leave mementos as a tribute to fallen comrades often helps provide a sense of closure.

Gilmore related one such story. "A little more than two years ago, we had a World War Two B-17 radio operator come here to look at the airplane. He asked, 'Can you guys do me a favour?' We said 'Sure.' He requested, 'Would you take this dollar bill and put it in the tail gunner compartment?' We said yes and asked why. He replied, 'Before one of our missions, I borrowed a dollar from our tail gunner,' and for some reason he didn't go on that mission and the airplane was shot down and everybody was killed, so he never had a chance to pay the tail gunner back. He said 'I want to pay that dollar back,' and we did it. Way down inside, there's a dollar bill stuck in the tail gunner position. Stuff like that just makes our day." **AN**

Left: CAF Airbase Arizona Chief Pilot Russ Gilmore (on the right) flies *Sentimental Journey* over the desert near its home base at Falcon Field Airport. Jay Beckman

Below: The B-17G looks stunning in the sunshine and reflects the care CAF Airbase Arizona lavishes upon it.





# AIR MAIL

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The Editor reserves the right to edit all letters.



## Jumbo Fan

I was disappointed to read in the April issue that the production rates for the Boeing 747 are to be cut to just 0.5 aircraft per month. The jumbo made long-haul travel attainable for the masses and we should not forget that.

My first long-haul flight was on a Virgin Atlantic Airways 747-100 and one of my fondest memories of air travel was when I was invited to visit the flight deck of a British Airways 747-200 on a trip from London Heathrow to Boston in the US.

For such an iconic aircraft to be fading away like this is extremely sad. Slowly but surely airlines have been phasing out the

jumbo in favour of the Boeing 777 or Airbus's A330 or A380, arguing that they are more economical. While I understand that from the airline's point of view making money is the objective, the type's replacements – be that the 777, A330 or A380, somehow fail to evoke the same awe.

The crumb of comfort though is the news that British Airways is upgrading 18 of its 747-400s, suggesting the type still has a healthy future with the carrier. Long live the Queen of the Skies.

**Brian Bond**  
Morden, Surrey

## LETTER OF THE MONTH

Welcome to the *Aviation News* incorporating *Classic Aircraft* letters page.

Letter of the Month winner John Murray, will receive three DVDs: *Pilot Diaries – F-105 Thunderchief*, *Magic of Flight – Boeing 757-200* and *Military Helicopters – Military Aircraft of the 20th Century*.

## Ruslan Revisited



One of the two Russian Air Force An-124s that visited Farnborough to pick up Land Rovers for the 'Camel Trophy 90' rally in Siberia. John Murray

Thanks for the two very informative articles on the Antonov An-124 in the March edition. You mention in the 'Russian Air Force Ruslans' piece about the transportation of the Land Rovers from Farnborough to Bratsk in 1990.

In fact, two An-124s were involved – both

in air force markings (09 black and 10 black). I was lucky enough to see them land from outside the The Swan pub on Farnborough Road. Interestingly they used their civil registrations for part of their call signs with 09 black as 'Aeroflot 82038' and 10 black as

'Aeroflot 82026'.

It was a strange sight at the time to see two Russian Air Force aircraft landing at an MOD airfield.

**John Murray**  
Farnborough, Hampshire

## B-2 Reinvented?

There has been speculation concerning the USAF's new stealth bomber for quite a while, so I was especially interested to see the artist's impression released of what is now known as the B-21 and read more details about it in your Headlines pages (April issue). From an enthusiast's point of view, I was very disappointed with the look of the new aircraft in the artwork – it appears to be very similar to the B-2 Spirit. Pushing the boundaries of aerospace technology

has produced some unusual looking aircraft, such as the F-117 Nighthawk and indeed the B-2. The first Spirit was rolled out in 1988 and was significantly different from the F-117 because technology had moved on. I naturally assumed that what the USAF has referred to as the bomber for the 21st century would look very different to something that first flew in the 1980s.

From what I have read, the USAF is wanting to reduce risk (and presumably

cost overruns) in the project by using technology already developed – so that may partly explain why this seems to be such a conservative design. Perhaps there will be more to it than meets the eye, with some elements of the design held back from the public for now. It will be interesting to see how the real aircraft compares with this first impression.

**Daniel Weston**  
By e-mail



# PAN AM DC-10s

## *A CURIOUS TALE*

**Charles Kennedy** looks back at the service of the McDonnell Douglas DC-10 as part of the Pan Am fleet.



**T**he story of Pan Am's McDonnell Douglas DC-10s starts with National Airlines, a domestic US carrier based in Miami, Florida. In 1968 it ordered 11 of the short/medium-haul -10 variant, with the first example (N60NA) entering service on December 15, 1971. It then ordered six DC-10-30s in 1972 with the initial one, N80NA, joining the airline on June 11, 1973.

Pan Am by this point was one of the most famous airlines in the world flying with an extensive network of purely international

services. The Airline Deregulation Act of 1978 meant that US airlines could now fly wherever they wanted; thereafter the only government regulation was operational oversight to ensure safety. While this opened up international routes to domestic carriers it also meant domestic flying in the US was possible for Pan Am. This not only opened up a huge new source of revenue but could also feed its international services.

However, creating a domestic route network would be a massive project. It

would mean opening dozens of new stations, but also acquiring lots of aircraft. Apart from a few Boeing 727s and 737s for short-haul flights in West Germany and Europe (as part of the post-war settlement in Europe, only US, French and British airlines were allowed into West Berlin), Pan Am had just long-haul aircraft. Pan Am's then chairman and CEO William T Seawell and his team felt such a build-up would take years and instead looked around for an existing US domestic operation to buy, and soon had National Airlines in their sights.





Above: **McDonnell Douglas DC-10-10 N68NA** in 1973 when serving with National Airlines.  
Jacques Barbé - Guy Van Herbruggen Collection



Left: **One of Pan Am's DC-10-10s landing at Las Vegas McCarran International Airport.**  
R Verschuur - Guy Van Herbruggen Collection

While not a perfect fit Pan Am's biggest international hub was New York's John F Kennedy International Airport, whereas National had more of a southern accent. The bigger obstacle to acquisition was that National was an enticing proposition for the ambitious upstart Texas International Airlines, which quickly acquired 24.6% of National's shares.

Pan Am emerged the winner after a bidding war, paying \$437m to buy National Airlines and officially taking control of the airline on January 7, 1980. Although National possessed a valuable infrastructure and a fleet of 43 Boeing 727s (19 of the -135 variant and 24 stretched -235s) and 16 DC-10s (11 of the -10 variant and five long-range -30s) Seawell had overpaid.

The deal, initially trumpeted as 'the coup of the decade' soon became better known as 'Seawell's folly'. With the added cost of painting over the fleet, rebranding the stations and merging two workforces, the total cost to Pan Am was at least half a billion dollars – more than \$1.5bn in today's money.

Pan Am was mainly focused on the Boeing 747 for its widebody fleet, however four months before the takeover of National it ordered 12 Lockheed L1011-500 TriStars. These were for long-haul routes that didn't have enough passengers to justify a 747. The first example, N504PA, arrived on April 11, 1980 and went into service on the New York JFK to Bogota route. Many routes, especially on the Atlantic, saw TriStar and DC-10-30 service interchangeably.



Above: **Pan Am used the DC-10-30s on some of its international services. Aircraft N81NA is seen at Frankfurt in August 1982.** Guy Van Herbruggen Collection



## COUNTING THE COST

With an already weak balance sheet, this was an enormous burden and assets were soon being shed to shore up Pan Am's finances. First to go, in mid-1980, was the 50% share of business jet manufacturer Falcon Jet Corporation in the summer of 1980, followed by the sale of the iconic New York headquarters building for \$400m in November.

Pan Am's controlling share in InterContinental Hotels was sold in early 1981 but before the deal was completed, Seawell's time at the carrier came to an end, and he was replaced by Ed Acker, previously of Air Florida and Braniff.

The 727s, newly painted in Pan Am's white and blue livery, operated mostly on the same routes they flew in National's white, orange and yellow. The final DC-10-30 of National's order, N84NA, was delivered to Pan Am, on August 6, 1980 bringing its fleet of the type to 17. The fleet of DC-10-10s stayed mostly in the US mainland, flying on the former National Airlines trunk routes from Miami to New York JFK and to California, with some transcontinental trips stopping in Houston or New Orleans.

However, the DC-10-30's long range made them ideal for thinner transatlantic trips out of Pan Am's JFK Worldport and they were soon appearing at European airports such as Paris/Orly, London/Heathrow, Frankfurt, Amsterdam, and Munich. One of the -30s, N84NA was

leased for one year to LAN Chile, from June 12, 1981, until June 13, 1982. It was reregistered CC-CJN, painted in that airline's full livery and operated mostly long-haul flights from the Chilean capital Santiago to other major South American cities and as far afield as Los Angeles and Miami.

Acker had a reputation for tinkering with schedules and configurations at his previous two airlines, which had made them profitable, and it was his suggestion that some of the DC-10s be reconfigured in an

ultra-high density layout of ten abreast in a 3-4-3 configuration, and used as people-movers to destinations in Europe without premium class demand such as London/Gatwick, Prestwick, Nice and Stockholm, as well as Caribbean sunspots such as St Lucia, San Juan and Barbados.

However, even this bold move didn't bear fruit and Acker was soon looking to offload the DC-10s, and found a slightly unconventional method of disposing of them.



Above: **National Airlines ordered six DC-10-30s in 1972. This example, N81NA, was delivered on June 18, 1973.** Guy Van Herbruggen Collection

Right: **This logo was produced to herald the takeover of National Airlines by Pan Am and appeared on timetables, ticket wallets and even badges worn by staff.** via author



## EXIT THE DC-10

In time for 1983's peak summer season, Pan Am had swapped some aircraft with Flying Tigers, which had three Boeing 747-212B passenger aircraft used

on charters and troop flights. Pan Am took them in return for four unwanted 747-121F pure freighters which were a much better fit for Flying Tigers' global freight-hauling business.

This gave Acker an idea about a suitable new home for his DC-10s. American Airlines had taken delivery of 16 747-123s at the start of the 1970s but experienced the same difficulty filling



Above: **Pan Am DC-10-30 N83NA taxis in at London's Heathrow Airport on a misty day in January 1981.** AirTeamImages.com/Carl Ford



Below: Pan Am operated both the TriStar 500 and DC-10-30 on some long-haul international routes. J vd Heijden - Guy Van Herbruggen Collection



them as the other US domestic carriers and grounded eight in 1974, converted them to freighters and sold them to Trans Mediterranean Airlines of Lebanon and Flying Tigers. The remaining eight soldiered on flying almost exclusively from New York/JFK to Los Angeles and San Juan (Puerto Rico), the only routes busy enough to fill a jumbo.

When American moved its main hub from New York to Dallas in the early 1980s, its 747s also flew from the Texan city to London/Gatwick and Honolulu. Ultimately, no matter which of American's routes they were deployed on, American's 747s were simply too big whereas the DC-10, of which they already had 35 (all series -10s) were a better fit. For Pan Am, having started the mass transit age with its 747s and becoming an airline geared around that type, standardising on the 747 made more sense, so a swap was agreed. American's eight 747-123s went to Pan Am and all but one of

the 17 Pan Am DC-10s went to American.

The DC-10s were pulled out of service and ferried to Tracor Aviation at Santa Barbara Municipal Airport north of Los Angeles one or two at a time. They were given heavy checks and reconfigured for American Airlines as well as being stripped of their livery in favour of their new owner's bare silver.

The first to go was N68NA, which left Pan Am on November 1, 1983. The last DC-10 to leave for American was N70NA, going to Santa Barbara on June 20, 1984. This left the final example, N84NA, which went to United Airlines on April 29, 1985 as part of a \$750m sale of Pan Am's entire Asia Pacific operation (about \$1.7bn in today's money).

Below: **McDonnell Douglas DC-10-10, N67NA, received the name *Clipper Star of Hope* in Pan Am service. It is seen at Miami International Airport in August 1982.** P Van Damme - Guy Van Herbruggen Collection

In the same year Pan Am started to dispose of the TriStars with three sold to Delta Air Lines and three to the RAF. The remaining six were later sold to United Airlines.

Not too many years later Pan Am founded and ceased operations on December 4, 1991.

The former Pan Am DC-10s outlived the airline flying on into the 1990s with American Airlines. Towards the turn of the century, American started to receive new Boeing 777-223ERs and its ageing fleet of trijets found new homes with operators including Hawaiian Airlines, FedEx Express and Omni Air International.

Today, one remains in service at FedEx Express, registered N554FE (previously N66NA), the 62nd DC-10 built. In September this year it will celebrate its 44th birthday. The rest of the fleet has been scrapped or is derelict but, like the airlines they flew for, are still remembered. **AN**





# AIRPORT MOVEMENTS

A round-up of notable aircraft visiting UK airports.



## ABERDEEN

4/2 M-GETS PC-12. 9/2 VQ-BSO Falcon 7X. 14/1 VQ-BSF Falcon 7X. 17/2 C-FFIJ Global 5000. 21/2 D-BADA Do 328-310 ADAC. 22/2 D-IBSL Phenom 100; G-CILN AW139 Bristow Helicopters arrived for checks, dep 9/3. 23/2 G-WNSP EC225LP CHC Scotia dep by road.

## BELFAST INTERNATIONAL

1/12 N280GA Gulfstream G280 n/s. 3/12 EI-LEO Citation 750 X. 7/12 N650XY Gulfstream G650 n/s. 12/12 RA-64021 Tu-204-100 Aviastar-TU. 14/12 OK-MAR CitationJet 525A CJ2+. 15/12 N272NR Phenom 300. 16/12 N209GA Gulfstream G280 n/s. 20/12 N819GA Gulfstream G150 n/s; EI-LIM AW139 Westair. 21/12 RA-64032 Tu-204-100 Aviastar-TU. 30/12 LN-RGC 737-86N SAS; EC-LVQ A320-216 Iberia Express both Dublin diversions.

## BIGGIN HILL

1/12 D-CEMS CitationJet 525B CJ3. 4/12 110/XP TBM 700A ET00.041, French AF. 8/12 OY-RAW Citation 525M2 n/s. 10/2 F-HOUR Citation 510 Mustang. 13/2 F-HMPB AW109SP. 14/2 N261NA Citation 680 Sovereign dep 16th; 9H-IRI Citation 560XLS n/s. 15/2 LX-GLS Legacy n/s. 16/12 HB-FXX PC-12 dep 18th. 18/12 OE-GHF Learjet 40. 21/12 N41268 AW139 arrived by road; OK-ILA CitationJet 525C CJ4 n/s. 29/12 D-FBVB PC-12. 30/12 C-FEDG Challenger 300. 31/12 N9688R Phenom 300.

## BIRMINGHAM

1/2 EC-MEA A320-232(SL) Vueling Airlines f/v; D-IPCG Cessna 425. 2/2 2-RICH PA-46-500TP. 4/2 OM-BYO Tu-154M Slovak AF. 5/2 I-EPAM Hawker 750. 6/2 OE-LAR Gulfstream G450; VP-CAM 737-7KK BBJ1 f/v. 8/2 D-ABMW Gulfstream G550; OE-HEY Falcon 2000EX. 10/2 D-ISCH CitationJet 525A CJ2; EC-KPJ Gulfstream G150. 11/2 D-AEWX A320-214(SL) Eurowings f/v; OK-OWN Legacy 650. 13/2 EC-JZV CRJ900 SAS. 14/3 AP-BMH 777-2Q8ER Pakistan International Airlines. 16/2 D-IBJJ CitationJet 525A CJ2; D-CFIV Learjet 35A. 17/2 LX-LOE Hawker 4000. 19/2 D-CVHB Citation 560XLS+. 20/2 07-8614/RS C-130J-30 37th AS, USAF f/v; EW-364TG An-26B Vulcan Air f/v. 21/2 OE-GPS Gulfstream G150. 23/2 OE-HDU Challenger 300. 25/2 SP-SPA ATR

**Glasgow Prestwick Airport was used by Pilatus PC-24 HB-VXB for tests and trials work during March.** David Townsend

72-202/F Sprint Air. 26/2 9H-BSA Hawker 750. 29/2 EC-MEL A320-232(SL) Vueling Airlines f/v; LN-LNA & LN-LND 787-8s Norwegian Long Haul, both LGW diversions and both f/v; UR-PSF 737-84R Air Ukraine International LGW diversion; HB-JGT Challenger 605.

## CAMBRIDGE

3/2 84-0157 C-12U 42nd AVN, US Army. 5/2 G-EZAD A319-111 easyJet repainted in Allegiant Air livery, noted 7/3 as N311NV. 8/2 EZ-S720 S-92A Government of Turkmenistan. 13/2 CS-CHA Challenger 350 NetJets Europe. 22/2 HB-JZV A319-111 noted in Allegiant Air livery, to become N324NV. 23/2 D-EARY Piaggio FWP-149D. 24/2 N420PD Falcon 900EX; D-IDKE Beech 90GTi; D-CJPG Learjet 35A. 25/2 D-IMAH CitationJet 525A CJ2+.

## DONCASTER SHEFFIELD

3/1 EI-LEO Citation 750 X dep 18th. 4/1 D-IEKU CitationJet CJ525A C/J2. 6/1 SP-ENK 737-46J Enter Air n/s. 11/1 D-ILHB CitationJet 525 CJ1+. 13/1

LX-VMF Citation 560XL n/s. 20/1 UR-74010 An-74T Antonov Airlines. 21/1 UR-82007 An-124-100 Antonov Airlines. 26/1 N425ST Citation 550 II dep 28th, Leeds Bradford diversion. 29/1 VH-YUL Citation 560 Encore dep. 31/1 N243PC Hawker 4000.

## DURHAM TEES VALLEY

10/1 N280EX Gulfstream G280 dep 12th. 13/12 LN-SSS Citation 680 Sovereign. 15/1 OH-WIA Citation 680 Sovereign. 16/1 N445JP Cessna 208B (ex RA-67184) & N248JD Cessna 208B (ex RA-67187) both on delivery to USA. 20/1 D-ECIM PA-28-140 n/s. 23/1 F-HPCD Diamond DA42NG n/s. 26/1 F-GULY Beech C.90B. 31/1 N626N Beech 60 Royal Turbine Duke.

## EAST MIDLANDS

1/2 UR-CKM An-12BP Cavok Air; D-CKNA CitationJet 525C CJ4; N1AL Gulfstream G650; OK-PPP Beechjet 400XT. 2/2 HB-IGV Falcon 50EX. 3/2 D-BTLT Challenger 300. 5/2 R202/64-GB Transall ET00.064, French AF. 7/2 R214/64-GM Transall ET00.064, French AF. 8/2 D-AICE A320-212 Condor for painting. 10/2 TF-BRO A320-232 WOW air for painting. 11/2 EI-RUE 737-85P ex Transaero for painting. 12/2 I-NEOW 737-



**Moscow-based Robinson R44 Raven II RA-04393 arrives at Denham on March 8, from Le Touquet in France. The helicopter spent two days with HQ Aviation while the crew underwent helicopter lane training.** Brian G Nichols





**Sécurité Civile's Bombardier Dash 8-Q400MR F-ZBMC arrived at Exeter International Airport on March 29, to undergo maintenance with Flybe Aviation Services.** Ian Simpson

86N Neos. 17/2 **1225 C-17A UAE Air Force; TF-FXI Dash 8-Q402 Air Iceland for painting.** 18/2 N902AR 744-428FER Centurion Air Cargo also 20th. 19/2 **AP-BMM A321-211 ex UTair for painting for Air Blue;** TF-SON A321-211 ex UTair, for painting for WOW air (ex-VP-BPP). 22/2 OE-FLG CitationJet 525 CJ1. 23/2 N903AR 744-428FER Centurion Air Cargo also 27th; ES-ACB & ES-ACC CRJ900s Estonian Air for painting. **25/2 HB-IZW Saab 2000 Darwin Airline/Etihad Regional for painting.** 28/2 **S2-AHH ATR 72-212A BQB Líneas Aéreas, ex CX-JPL, for painting for Novoair;** ES-ACD CRJ900 Estonian Air for painting.

## EXETER

1/1 F-HTCR Beech C.90GTi. 3/1 A9C-BRN Gulfstream G550. 5/1 OY-PSB PC-12. 7/1 F-GGGT Citation 550 II. 8/1 XX405 Gazelle AH1 QinetiQ. **13/1 OE-FID Citation 510 Mustang;** EC-LYL Citation 560XLS+. 15/1 LN-IDC Citation 560 Encore; B-537 C-130J-30 Esk.721, Royal Danish AF. 17/1 T7-ASH PA-46 JetPROP DLX. 22/1 N397CM Citation 510 Mustang. 24/1 SP-ENK 738-46J Enter Air.

1/2 N990LC Learjet 35A. 2/2 HB-JGT Challenger 605. 9/2 OE-HEY Falcon 2000LX. 11/2 VP-BGO Challenger 605; D-CJPD Learjet 31A; TF-BBG 737-36EF Bluebird Cargo. 13/2 9H-BOM Challenger 605.

Flybe Aviation Services

**2/1 SE-DSO RJ100 Malmö Aviation dep 31st.** 3/1 A9C-AWL RJ100 Royal Bahraini AF. 4/1 OE-LMK E170ST People's Viennaline dep 7/2. 9/1 EC-MCK BAe.146-300QT Pan-Air. 17/1 **N449YV Dash 8-202 Berry Aviation.** 28/1 SE-DST RJ100 Malmö Aviation dep 12/2.

**13/2 SE-DSV RJ100 Malmö Aviation.** 15/2 SE-DJN RJ185 Malmö Aviation.

## GLASGOW

1/2 N450EA Gulfstream G450; A6-EPI 777-31HER Emirates f/v. 2/2 F-HBAI Avanti. 3/2 EC-LTF Global 6000. 4/2 ZE707 BAe.146 C3 32(TR) Sqn, RAF. **5/2 N7799T Gulfstream IVSP.** 7/2 73-1214 C-12C Bangkok Embassy Flight. 8/2 N136KF Beech 350. **9/2 97-00105 UC-35A E/1-214 AVN, US Army.** 11/2 YR-BAE 737-46N Blue Air. 14/2 HZ-MF6 737-9FG BBJ3; YR-BAO 737-42C Blue Air. 15/2 I-FORR Learjet 40. 18/2 N792CA TBM 700 c/n 285 on delivery to South Africa. 20/2 **N560WK Dash 8-515 US Department of State;** D-AZEM Falcon 900EX. 21/2 A6-EPJ 777-31HER Emirates f/v.

## GUERNSEY

3/1 HB-VPG Phenom 300. 4/1 SE-MAJ BAe ATP Westair. 6/1 D-EOPG PA-46 JetPROP DLX. 12/1 OE-GHA Citation 560XLS dep 14th as G-LXWD. **13/1 EC-KTC Do 28G-92.** 16/1 F-GBGF Cessna 210L. 18/1 N135RU Citation 525M2. 27/1 G-NOYA Gulfstream G550 dep 29th as OE-IPA. 28/1 F-WVXB WT-9 Dynamic.

## INVERNESS

4/1 PH-DIX PC-12 also 18th & 27th. 10/1 M-MIKE CitationJet 525B CJ3. 19/1 OY-CKK Falcon 2000EX. **25/1 OY-SWO Falcon 2000S.**

8/2 D-ITWL Cessna 425 n/s. 9/2 OO-LIE CitationJet 525B CJ3 dep 12th. 11/2 VQ-BSF Falcon 7X also 13th. 15/2 OE-GPS Citation 550 Bravo. 25/2 9H-BSA Hawker 750. 25/2 LX-ERG PC-12.

## JERSEY

3/2 SE-MHG BAe ATP West Atlantic f/v. 6/2 OK-PPP Beech 400XP. 8/2 9H-BSA Hawker 750. 10/2 ZE708 BAe146 C3 32(TR) Sqn, RAF. 13/2 VP-BGO Challenger 605. 17/2 F-HCEF Falcon 50EX. 18/2 EC-KSU Cessna 310R. 19/2 D-IAFS Beech 55; N4446M PA-34-220T on delivery to Indonesia. 20/2 YU-HWF SA341G. 21/2 N4447X PA-34-220T on delivery to Indonesia. 25/2 ZS-KDR Global Express. **26/2 F-GYAC Robin DR.400/160;** N4439T PA-34-220T on delivery to Indonesia. 27/2 D-ISRM Citation 510 Mustang.

## LEEDS BRADFORD

1/12 D-CJOS CitationJet 525B CJ3. 3/12 D-FFHZ PC-12; M-GCAP Avanti. 4/12 QQ101 RJ100 QinetiQ. **7/12 F-HFIT BN-2T Islander.** 8/12 D-CHIO CitationJet 525B CJ3. 9/12 F-HATG CitationJet 525C CJ4; LY-

SPG A320-214 Small Planet Airlines. 10/12 OO-PCI PC-12. 11/12 D-CAWX Citation 680 Sovereign+; LN-WDJ Dash 8-Q402 Widerøe dep 13th. 18/12 0454 C-295M 242.tsl, Czech AF. 20/12 D-CNUE Learjet 60. 22/12 SP-ENT 737-8AS Enter Air. 26/12 SE-DJL Falcon 7X. 28/12 C-GEJD Learjet 45.

## LIVERPOOL

3/1 EC-KHN A320-214 Vueling Airlines; OE-LIR Do 328-110 Welcome Air; 9A-JSC CitationJet 525A CJ2 dep 6th. 8/1 F-GVYC Citation 560XLS. 13/1 LN-SSS Citation 680 Sovereign. 15/1 YL-PSB 737-8Q8 Primera Air Nordic dep 17th. 17/1 OH-LKO E190LR Finnair & TF-LLX 757-256 Icelandair, both Manchester diversions. 27/1 D-CHIO CitationJet 525B CJ3; OE-FZA Citation 510 Mustang. 28/1 LX-SUN Avanti.

## LONDON GATWICK

2/2 A6-EOU A380-861 Emirates f/v; EI-FHN 737-8JP Norwegian Air Shuttle f/v. 3/2 **EP-AJA A340-313X Meraj Airlines f/v.** 6/2 HB-JYM & HB-JYN A319-111s easyJet Switzerland both f/v; OE-LDF A319-112 Austrian Airlines f/v. 7/2 ZE708 BAe146 C3 32(TR) Sqn RAF f/v. 8/2 TC-JY1 737-8F2 Turkish Airlines f/v. 10/2 TC-CPY 737-8H6 Pegasus Airlines f/v. 12/2 OM-GTD 737-46J Go2Sky f/v. 13/2 D-AIRB & D-AIRE A321-131s Lufthansa both f/v; OE-LEC & OE-LEX A320-214s Niki both f/v; OK-TSM 737-9GJER Travel Service f/v. 15/2 LN-LNA 787-8 Norwegian Long Haul f/v. 16/2 EI-FJA 737-8JP & EI-FJC 737-81D Norwegian Air Shuttle both f/v. 18/2 TC-JVH 737-8F2 Turkish Airlines f/v; YL-LCM A320-211 Smart Lynx op for Travel Service f/v. 19/2 D-AIAA A321-211 Condor op for Thomas Cook Airlines f/v. 20/2 D-AIDX & D-AIRW A321-131s Lufthansa both f/v; OE-LDB A319-112 Austrian Airlines f/v; OE-LEA A320-214 Niki f/v. 21/2 TC-JOG A330-303 Turkish Airlines f/v. 22/2 EI-FJH 737-8JP Norwegian Air Shuttle f/v. 24/2 SX-DNC A320-232 Aegean Airlines f/v; TC-JVJ 737-8F2 Turkish Airlines f/v. 25/2 EI-FJE 737-8JP Norwegian Air Shuttle f/v. 26/2 HB-JLS A320-214 Swiss International Airlines f/v. 27/2 OE-LBP A320-214 Austrian Airlines f/v. 28/2 A6-EOV A380-861 Emirates f/v.

## LONDON HEATHROW

22/2 A6-EOV A380-861 Emirates f/v; D-AIUQ A320-214(SL) Lufthansa f/v. 23/2 4X-EAN 767-3Q8ER EI AI f/v. 25/3 EC-MGZ A321-231(SL) Vueling Airlines f/v. **27/3 N721MC Gulfstream V.** 29/2 EC-MJA A330-202 Iberia f/v; TC-JHN 737-8F2 Turkish Airlines & TC-CPG 737-82R Pegasus Airlines, both Gatwick diversions.

1/3 N321GG 737-5H6; TC-JTF & TC-JTG A321-231(SL)s Turkish Airlines both f/v. 2/3 SX-DNC A320-232(SL) Aegean Airlines f/v. 3/3 C-FGDT 787-9



**Kenya Airways Embraer 170 5Y-KYH arrived at London Southend Airport on March 23, for work prior to joining Eastern Airways. Sistership 5Y-KYK, which is also destined for Eastern, had arrived on March 10.** Keith Burton



Air Canada f/v; D-AEWA A320-214(SL) Eurowings f/v; HB-VWZ Citation 510 Mustang. 4/3 A7-BCZ 787-8 Qatar Airways f/v; EC-MJR A321-231(SL) Vueling Airlines f/v; T7-MRE A320-232(SL) Middle East Airlines f/v. 5/3 D-AIUR A320-214(SL) Lufthansa f/v; N735AT 777-323ER American Airlines f/v. 7/3 4X-EHF 737-958 EI Al f/v; A7-BDA 787-8 Qatar Airways f/v; TC-JVD 737-8F2 Turkish Airlines f/v. 8/3 D-AEWB A320-214(SL) Eurowings f/v; TC-LND A330-303 Turkish Airlines f/v. 9/3 OY-JTY 737-7Q8 Jet Time f/v. 10/3 A6-APF A380-861 Etihad Airways f/v; EC-MFM A320-232(SL) Vueling Airlines f/v; TC-JVB 737-8F2 Turkish Airlines f/v. 11/3 EC-MHS A321-231(SL) Vueling Airlines f/v. 12/3 N736AT 777-323ER American Airlines f/v. 13/3 OH-LTU A330-302E Finnair f/v. 14/3 TC-JHV 737-8F2 Turkish Airlines f/v. 17/3 C-FNOI 787-9 Air Canada f/v. 18/3 OH-LTR A330-302E Finnair f/v. 20/3 EC-MHB A321-231(SL) Vueling Airlines f/v. 21/3 D-AEWA A320-214(SL) Eurowings f/v; TC-JTH A321-231(SL) Turkish Airlines f/v. 22/3 C-FGDX 787-9 Air Canada f/v. 23/3 TF-ISJ 757-256 Icelandair f/v. 24/3 **OD-RMI A321-231 Middle East Airlines f/v.**

## LONDON LUTON

1/2 **AP-BMN A321-211(SL) Air Blue, from East Midlands, for pre-delivery maintenance, dep 6th to Karachi; UP-EM017 Legacy 650; C-GDLI Challenger 601-3R. 2/2 HZ-SK6 Gulfstream G550; HZ-SKY3 A320-214X CJ; P4-SUN Legacy 600. 3/2 5105 Challenger 601-3A 241.dlt, Czech AF; LN-FIX Beech 200. 5/2 9H-VCL Challenger 350 on delivery to VistaJet; 4K-8888 A319-115LR Azerbaijan Airlines; D-CMED Learjet 55. 6/2 OE-HHH Challenger 300; **AP-BMM A321-211(SL) Air Blue, from Teruel for pre-delivery maintenance. 8/2 HA-LXC A321-231(SL) Wizz Air. 10/2 D-CECH Citation 560XLS+. 12/2 N627AS 737-790 Alaska Airlines, en route to IAI for freighter conversion; SP-ENW 737-86J Enter Air. 14/2 N510CX Citation 750 X; **XA-CHD Falcon 2000LX. 15/2 YR-BME 737-86N Blue Air. 16/2 SE-RHJ Citation 560XL. 17/2 N294GA Gulfstream G280; N585GS Gulfstream G650. 18/2 **RA-02771 HS.125-700B. 19/2 **XA-CHK Hawker 800XP; LY-ZAB CRJ200LR. 20/2 RA-09003 Falcon 900EX. 21/2 EC-MJB, EC-LVV, EC-LZE & EC-MEL A320-232(SL) Vueling Airlines all from/to Barcelona for the Mobile World Congress. 22/2 EI-FGI 717-2B1 Volotea Airlines;**********



**New Tecnam P2010 TF-TEN was delivered via Booker Airfield in March. The aircraft is operated by Flugfélagið Geirfugl and was photographed on March 30.** Clive Glaister



**US Army UC-35A 98-0010 taxis in at Glasgow Airport on March 28. It departed the following day as 'Wing 46'.** Kevin Kennedy

EC-LXK A330-302 Iberia with Barcelona FC. 23/2 OE-IMF Falcon 7X; 9H-ZAZ 737-436 Air Horizont; EC-LUK A330-302 Iberia, for Barcelona FC. 24/2 LX-ERG PC-12; **B-8196 Global Express; D-IMHA CitationJet 525A CJ2+. 26/2 VQ-BVA Hawker 850XP; P4-AZG Gulfstream G650ER.**

## LONDON SOUTHEAST

1/2 LX-TAC Phenom 300 n/s. 6/2 LX-LGE Dash 8-Q402 Luxair London City diversion. 8/2 M-RBIG Learjet 45 f/v n/s. 9/2 SE-RMO Learjet 45XR f/v dep 10. 13/2 D-AONE Challenger 604 f/v. 15/2 LX-EVM Falcon 2000EX f/v. 24/2 D-ICCC Cessna F.406 Air-Taxi Europe. 25/2 SE-RMJ CitationJet 525B CJ3 f/v.

## MANCHESTER

1/2 CS-DIY CitationJet 525B CJ3 f/v. 3/2 A6-EPH B777-31HER Emirates f/v. 5/2 EC-MBS A320-232(SL) Vueling Airlines f/v. 6/2 A7-BFB 777-FDZ Qatar Airways Cargo f/v; OE-FBD Citation 510 Mustang f/v. 7/2 D-AIKC A330-343X Lufthansa f/v, for painting at Air Livery. 9/2 SP-SPA ATR 72-202 Sprint Air f/v. 10/2 TC-JVH 737-8F2 Turkish Airlines f/v; SP-MRB Saab 340A(QC) Sky Taxi. 11/2 OE-GDM Citation 560 Encore+ f/v. 12/2 EC-JYX A320-214 Vueling Airlines f/v. 13/2 HZ-AK28 777-368ER Saudia f/v; OK-TVO 737-8CX Travel Service f/v; OE-LEC A320-214 Niki f/v. 16/2 D-ABCF A321-211 Air Berlin f/v. 17/2 A7-BCP 787-8 Qatar Airways f/v; D-BEAM Challenger 300 f/v. 18/2 B-KPN 777-367ER Cathay Pacific f/v; HZ-AK29 777-368ER Saudia f/v; OO-JDL B787-8 Jetairfly f/v for painting at Air Livery. 19/2 A6-EPI 777-31HER Emirates f/v; TC-JVJ 737-8F2 Turkish Airlines f/v;

D-ABCA A321-211 Air Berlin f/v, op for Jet2. 20/2 D-AIUQ A320-214(SL) Lufthansa f/v; OK-TSM 737-9GJER Travel Service f/v. 21/2 M-HPIN Phenom 300 f/v – Leeds Bradford diversion. 22/2 EC-LOB A320-214 Vueling Airlines f/v; **B-8196 Global Express f/v. 23/2 G-VYGL Voyager KC3 AirTanker f/v, for painting at Air Livery. 24/2 AP-BMH 777-2Q8ER Pakistan International f/v; OY-RJC CRJ100ER Backbone Aviation f/v, FC Midtjylland to play Manchester United. 25/2 EC-JZI A320-214 Vueling Airlines f/v; OK-TSH 737-804 Smart Wings f/v; D-ATUO & D-ATUZ 737-8K5s TUIfly both f/v with FC Augsburg fans for game with Liverpool FC; OY-JRZ A320-233 Danish Air Transport f/v, with FC Midtjylland fans. 27/2 TC-MCC A300B4-622R MNG Cargo f/v. 28/2 N503VJ 5000 f/v; N18WF Global Express f/v; F-HOLI PC-12 f/v.**

## NORWICH

4/2 D-ASPB A319-112 PrivatAir to Air Livery, dep 12th. 10/2 N788DP 737-79U BBJ1 dep ex Air Livery. 13/2 TF-ISJ 757-256 Icelandair to Air Livery, dep 24th. 14/2 LN-OBX AS332C Airlift AS. 18/2 TC-SUL 737-85F SunExpress to Air Livery. 20/2 OO-JAF 737-8K5 Jetairfly to Air Livery, dep 27th. 22/2 SE-MDA ATR 72-212A Golden Air Flyg to KLM Maintenance. 25/2 EC-KKD Hawker 400XP also 27th; TC-SUM 737-85F SunExpress to Air Livery. 28/2 OY-FWO Falcon 7X. 29/2 VP-BWL A319-111 Aeroflot to Air Livery.

## PRESTWICK

3/2 HB-FQO PC-12 c/n 1596 on delivery; 166693 C-40A VR-57, USN. 4/2 99-0102 UC-35A E/1-214th Avn, US Army. 5/2 YR-BME 737-86N Blue Air; 87-0043 C-5B 337th AS, AFRC dep 13th. 7/2 168206 UC-12W SP-MAGTFG, USMC. 10/2 07-61016 Beech 300 B Co./3-214th Avn, US Army; HB-FQP PC-12 c/n 1597 on delivery. 13/2 15002 CC-150 437 TS, RCAF. 16/2 08-3172 C-130J-30 40th AS, 317th AF, USAF; N294GA Gulfstream G280; HB-FQQ PC-12 c/n 1598 on delivery. 23/2 N286RW Gulfstream G280. 24/2 HB-FQV PC-12 c/n 1603 on delivery. 25/2 HB-FWA PC-12 demonstrator. 26/2 HB-FXM PC-12. 27/2 92-3287 C130Hs 96th AS, AFRC.

## SOUTHAMPTON

6/2 PH-EZT E190STD KLM Cityhopper Heathrow diversion; F-HOUR Citation 510 Mustang. 10/2 C-GDTM Learjet 35A. 12/2 C-GCIL Learjet 55. 18/2 N90CX CitationJet 525B CJ3.

Key: f/v first visit; n/s night stop; o/s overshoot.

With thanks to: D Apps, D Banks, D Bougourd, S Boyd, J Brazier, N Burch, P Claridge, A Clarke, I Cockerton, KW Ede, M Farley, N French, P Gibson, D Graham, A Greening, J Gregory, I Grierson, D Haines, M Harper, K Hearn, G Hocquard, B Hunter, S Lane, G Morris, S Morrison, R Richardson, R Roberts, E Russell, RJ Sayer, M Shepherd, A Smith, D Turner, JA White, G Williams, Blackpool Aviation Society, Manston Movements, Solent Aviation Society/Osprey, South Wales Aviation Group, CIAN, GSAE, The Aviation Society, EGPE ATC, www.dtmovements.co.uk, Aerodata Quantum Plus and RHADS.

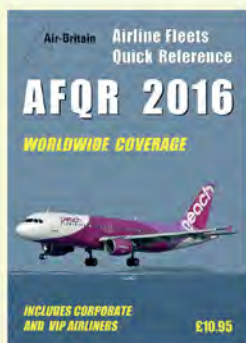


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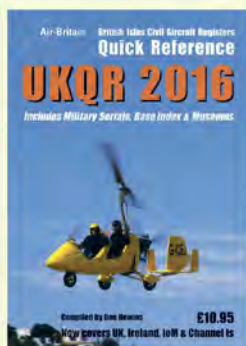
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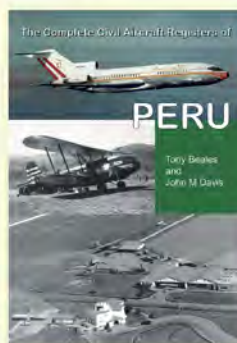
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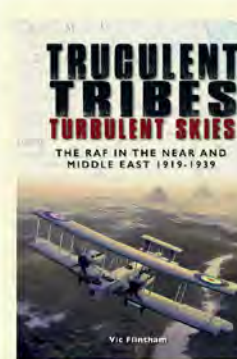
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# AIR BASE MOVEMENTS

A selection of the most interesting aircraft to visit air bases in the UK recently.



## RAF BRIZE NORTON

**1/2** ZJ994/AC Merlin HC3i 845 NAS, RN; KAF327 C-130J-30 41 Sqn, Kuwait AF dep 3rd. **3/2** ZZ417 Shadow R1 14 Sqn, RAF. **5/2** R202/64-GB Transall ET00.064, French AF; 84007/847 Tp-84 TSFE/HOB Royal Swedish AF. **9/2** ZJ208 Apache AH1 4 Regt, AAC. **11/2** XZ994 Harrier GR.3 arrived by road for use in an exercise after which it will be sold by tender. **15/2** 144617 CC-144C 412 TS, RCAF. **16/2** E137/705-LJ & E58/705-TK Alpha Jet Es EAC00.314, French AF both o/s. **18/2** 5629 C-130J-30 333 Skv, Royal Norwegian AF. **19/2** 5607 C-130J-30 333 Skv, Royal Norwegian AF. **25/2** ZZ418 Shadow R1 14 Sqn, RAF also 26th. **26/2** MRTT028 Voyager KC2 on delivery to AirTanker, it was subsequently registered as G-VYGM and will become ZZ342 in due course.

## RAF CONINGSBY

**1/2** 108/YW Xingu EAT00.319, French AF. **4/2** 089/YJ Xingu EAT00.319, French AF. **15/2** 51+09 Transall LTG 61, German AF. **17/2** E137/705-LJ, E58/705-TK & E171/705-RZ Alpha Jet Es EAC00.314, French AF all o/s. **18/2** ZK369 Typhoon FGR4 delivered from Warton, first Tranche 3 aircraft for RAF. **24/2** 50+75 Transall LTG 63, German AF dep 28th. **29/2** 50+81 Transall LTG 61, German AF.

## RAF CRANWELL

**10/2** E28/705-AB, E11/705-UB, E58/705-TK (also 16th) & E83/705-TZ Alpha Jet Es EAC00.314, French AF. **16/2** E137/705-LJ & E171/705-RZ Alpha Jet Es EAC00.314, French AF. **17/2** ZJ208 Apache AH1 4 Regt, AAC.

## RNAS CULDEROSE

**1/2** N-319 NH90-NFH 860 Sqn, Royal Netherlands AF. **10/2** ZJ207 & ZJ230 Apache AH1s 3 Regt, AAC both

**USAF C-146A Wolfhound 11-3104 touches down at an overcast Mildenhall on February 25.** Justin Ward

also 11th. ZJ207 & ZJ230 Apache AH1s 673 Sqn, AAC. **29/2** ZZ414, ZZ514, ZZ515 & ZZ377 Wildcat HMA2s 825 NAS, RN.

## FAIRFORD

**2/2** 80-1086 & 80-1089/BB U-2S 99th RS, 9th RW, USAF both n/s. **26/2** 10-0213 C-17A 437th/315th AW, USAF.

## LAKENHEATH

**9/2** J-008 & J-642 F-16AMs 311/313 Sqn, Royal Netherlands AF. **10/2** ZJ215 & ZJ231 Apache AH1s 3 Regt, AAC. **16/2** E137/705-LJ, E58/705-TK & E171/705-RZ Alpha Jet Es EAC00.314, French AF. **17/2** 84-0156 C-12U E/1-14 AVN, US Army. **24/2** 02-1109 C-17A 62nd/446th AW, USAF n/s.

## RAF LEEMING

**2/2** ZA609/072 Tornado GR4 arrived from RAF Marham for initial storage before reduction to produce. **10/2** ZA405/014 Tornado GR4 arrived from RAF Marham for initial storage before reduction to produce.

## RAF LOSSIEMOUTH

**3/2** 165313/JW C-130T VR-62, USN.

## MILDENHALL

**2/2** 165315/NY KC-130T VMGR-452, USMC dep 4th. **5/2** 166514/BH KC-130J VMGR-252, USMC dep 7th. **12/2** 85-0008 C-5M 436th/512th AW, USAF n/s also 13th n/s; 90-0162 MC-130H 15th SOS, 1st SOW, USAF n/s. **14/2** 65-0989/DM EC-130H 55th ECG, USAF. **18/2** C-215 Challenger 604 Esk.721, Royal Danish AF. **19/2** 164997/AX C-130T VR-53, USN.

**25/2** 82-0057 C-130H 144th AS, Ak ANG dep 3/3; **11-3104 C-146A 524th SOS, 27th SOW, USAF**; 165151 C-20G CFLSW ETD SIG, USN. **26/2** 85-0002 C-5M 436th/512th AW, USAF n/s also 27th n/s; 82-0055 C-130H 164th AS Oh ANG dep 4/3; 12-5768/FT HC-130J 71st RQS, 347th RG, USAF dep 28th; **79-0001/OK E-3G 552nd ACW, USAF**. **28/2** 82-0056 C-130H 164th AS Oh ANG n/s; **14-0028 A400M 221 Filo, Turkish AF n/s**. **29/2** 81-0626 & 81-0629 C-130Hs 164th AS, Oh ANG both n/s.

## RAF NORTHOLT

**10/12** TR.20-01/403-11 Citation 560 V 403 Esc, Spanish AF n/s. **20/12** T.18-3/45-2 Falcon 900B 45 Gr, Spanish AF n/s. **25/12** 258 Learjet 45 102 Sqn, Irish Air Corps. **26/12** 253 CN235-100MP 101 Sqn, Irish Air Corps.

**3/2** CM-02 Falcon 20E-5 15 Wing, Belgian Defence - Air Component; C-215 Challenger 604 Esk.721, Royal Danish AF; 100001 OS-100 TSFE, Royal Swedish AF; MM62171 Falcon 900EX 31<sup>st</sup> St, Italian AF. **4/2** 14+02 Global 5000 FBS, German AF; V-11 Gulfstream IV 334 Sqn, Royal Netherlands AF; 4/F-RAFQ Falcon 900 ET00.060, French AF; T-784 Citation 560XL LTDB, Swiss AF. **8/2** L1-01 Falcon 2000EX 107letb, Slovenian AF. **9/2** 77 Xingu EPV/28F, French Navy. **11/2** 252 CN235-100MP 101 Sqn, Irish Air Corps. **21/2** YU-BNA Falcon 50 Serbian Government n/s.

## RAF SHAWBURY

**3/2** XX199 Hawk T1A arrived by road from RAF Valley for storage; ZJ230, ZJ197 & ZJ192 Apache AH1s 3 Regt, AAC. **9/2** ZJ199 & ZJ215 Apache AH1s 673 Sqn, AAC. **10/2** ZJ182 & ZJ208 Apache AH1s 4 Regt, AAC. **15/2** ZK559, ZK553 & ZK550 Chinook HC6s 7 Sqn, RAF. **17/2** WV908/A-188 Sea Hawk FGA6 RNHF arrived from RNAS Yeovilton for long-term storage. **18/2** ZZ387 Wildcat AH1 1 Regt, AAC; ZJ200 Apache AH1 3 Regt, AAC.

## RAF VALLEY

**15/2** CE-02 ERJ 135LR 15 Wing, Belgian Defence - Air Component.

## RNAS YEOVILTON

**2/2** 041 Falcon 20ECM 717 Skv, Royal Norwegian AF o/s. **9/2** ZJ207 & ZJ230 Apache AH1s 3 Regt, AAC both also 11th.

Key: n/s night stop; o/s overshoot



Polish Air Force F-16C 4055 rolls out on Runway 06 at Lakenheath on March 16. It was joined by two others, 4040 and 4060, with the former departing to the US two days later. Kevin Hudson



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# REGISTER REVIEW

The latest changes on the UK, Irish, Isle of Man, Guernsey and Jersey registers.



**AgustaWestland AW169 G-KSST (c/n 69014) is the first of the type to join the UK Register. The helicopter is owned by Specialist Aviation Services and is the new mount for the Kent, Surrey and Sussex Air Ambulance Trust.** Liam Daniels

## RESTORATIONS

REG'N	MODE(S)	TYPE	C/N	OWNER
G-AVAV	406FFE	Vickers Supermarine Spitfire IXT	CBAF 7269	Warbird Experiences Ltd, Biggin Hill, Greater London
G-BMFN	40705B	QAC Quickie Tri-Q.200	PFA 094A1-11062	RF Thomson, (Weston-Super-Mare, North Somerset)
G-BMSA	401BAB	Stinson HW-75	7040	P Fraser-Bennison, Redhill, Surrey
G-CCEB	40494F	Thruster T600N 450	0035-T600N-085	CP Whitwell, (Gosberton Risegate, Lincolnshire)
G-CCJC	4049F2	Mainair Pegasus Quantum 15	7974	P Clark, (Dorking, Surrey)
G-CGAM	40586C	Schleicher ASK-21	21144	Goalrace Ltd, Husbands Bosworth, Leicestershire
G-CITP	406F03	Grumman American AA-1B Trainer	AA1B-0466	Have a Look SPRL, Grimbergen, Belgium
G-DCDB	407006	Bell 407	53137	AP Morrin, Dublin Weston, County Kildare, Republic of Ireland
G-EZBP	400FE1	Airbus A319-111	3084	easyJet Airline Company Ltd, London Luton, Bedfordshire (NB)
G-KIRC	4032BC	Pietenpol/Challis Chaffinch	1008	MJ Kirk, (Saint-Doha, Merdrignac, France)
G-MYKD	40379E	Cyclone Chaser S 508	CH857	SD Pain, (Braintree, Essex)
G-MZJX	403F0B	Mainair Blade	1139-0198-7-W942	H Mercer, (Cadishead, Greater Manchester)
G-OTTI	403A57	Cameron Otti-34	3490	Hoogstraats Balloon Team, (Hoogstraten, Belgium)
G-RIOT	405373	Silence Twister	PFA 209-14700	Zulu Glasstek Ltd, Baileys Farm, Long Crendon, Buckinghamshire
G-VWET	406F3D	Lake LA-4-200 Buccaneer	1106	JM Charlton, Nice Côte d'Azur, France
G-VYGL	406D27	Airbus A330-243MRTT	1555	AirTanker Ltd, RAF Brize Norton, Oxfordshire
El-DGU	4CA247	Airbus A300B4-622R(F)	557	ASL Airlines (Ireland) Ltd, Leipzig, Germany

## NEW REGISTRATIONS

REG'N	MODE(S)	TYPE	C/N	OWNER
G-CIUW	406FA5	Noorduyn AT-16 Harvard IIB	14-245	J Brown, Shuttleworth (Old Warden), Bedfordshire
G-CIUY	406FAF	Bell 206L-3 LongRanger III	51578	Volantair LLP (London EC2A)
G-CIWO	406FE1	Airbus Helicopters AS350B3 Ecureuil	8191	Airbus Helicopters UK Ltd, Oxford, Oxfordshire

G-CIWP	406F5B	Ikarus Comco C42 FB100 Bravo (assembled by Red Aviation)	1510-7425	PD Ashley, (Brixham, Devon)
G-CIWS	406FE8	Zenair CH.601HD Zodiac (built by KWS)	6-8027	IJM Donnelly, (Aboynne, Aberdeenshire)
G-CIXJ	40700E	Curtiss P-36C Hawk	12624	Patina Ltd, Duxford, Cambridgeshire
G-CIXX	406FAB	AutoGyro Cavalon (assembled by Rotorsport UK Ltd)	RSUK/CVLN/018	Rotorsport Sales and Service Ltd, (Prolley Moor, Wentnor, Shropshire)
G-CIYC	407035	Flylight Foxcub	DA132	C Moore, Deenethorpe, Northamptonshire
G-CIYE	40704F	Airbus Helicopters EC225LP Super Puma 2+	2600	Finmeccanica SpA, (Rome, Italy)
G-CIYF	406FFD	Vickers Supermarine Spitfire Mk.F.IX	6S-160931	Biggin Hill Heritage Hangar Ltd, Biggin Hill, Greater London
G-CIYH	407050	Airbus Helicopters EC225LP Super Puma 2+	2623	Finmeccanica SpA, (Rome, Italy)
G-CIYJ	407063	Hughes 369E (built by MD Helicopter Inc)	0590E	Eastern Atlantic Helicopters Ltd, Cardiff Barrage, Penarth, Vale of Glamorgan
G-CIYL	407059	Aeropro EuroFOX 912(iS)	BMAA/HB/682	RM Cornwell, (Somerford Keynes, Gloucestershire)
G-CIYR	407065	Lindstrand LTL 177T SkyFlyer	SF001	Lindstrand Technologies Ltd, Cardiff Barrage, Penarth, Vale of Glamorgan
G-CIYU	406FAE	AutoGyro Calidus (assembled by Rotorsport UK Ltd)	RSUK/CALS/029	PM Bidston, City Airport (Manchester Barton), Greater Manchester
G-CIYY	407062	TLAC Sherwood Ranger XP	LAA 237B-15388	MRM Welch, (Bosham, West Sussex)
G-CIZB	407005	Magni M24C Orion (assembled by Magni Gyro Ltd)	24-16-9514	JE Fallis, Popham, Hampshire
G-CIZG	406FF0	Robinson R66 Turbine	0698	Heli Air Ltd, Wellesbourne Mountford, Warwickshire
G-CIZK	40700F	Magni M16C Tandem Trainer (assembled by Magni Gyro Ltd)	16-16-9534	Gyromania Ltd, Popham, Hampshire
G-CIZP	406FCE	AutoGyro Cavalon Pro (assembled by Rotorsport UK Ltd)	RSUK/CAVP/001	C Coffield, Chiltern Park, Wallingford, Oxfordshire
G-CIZS	407054	Tipsy Nipper T.66 Series 2 (built by Cobelavia)	49	ND Dykes, (Bacup, Lancashire)
G-CIZY	40703D	Piper PA-34-200T Seneca II	34-7870044	Bar Aviation Rentals Ltd, Larnaca International, Republic of Cyprus
G-CJAU	40703A	White Sports Monoplane	JA002	J Aubert (Aldershot, Surrey)



PREVIOUS IDENTITIES			
REG'N	P.I.		
G-AVAV	ex D-FMKN	G-CIZY	ex SX-BSA
G-BMSA	ex G-MIRN	G-CLII	ex OY-HLE
G-CITP	ex OO-PTC	G-CLPX	ex D-1830
G-CIUW	ex SE-BII	G-CLRZ	ex D-7778
G-CIUY	ex D-HALT	G-CLRZ	ex D-2741
G-CIWS	ex 59ACA (French Ultralight sequence)	G-DCDB	ex EI-RHM
G-CIXJ	ex N80FR	G-DLOE	ex D-KEOE
G-CIYE	ex D-HDON	G-EROE	ex LV-X430
G-CIYF	ex N601FF	G-EZBP	ex HB-JZS
G-CIYH	ex D-HPIT	G-EZPA	ex D-AUBM
G-CIYJ	ex HB-ZKD	G-EZPB	ex D-AUBO
G-CIZS	ex OO-WOT	G-EZPC	ex D-AUBP
		G-GMOX	ex C-GMOX

*The rest of the previous identities for this month's listing will appear in the next issue.*

G-CJDW	407071	Magni M16C Tandem Trainer (assembled by Magni Gyro Ltd)	16-16-9494	A Brown and WJ Whyte, Perth, Perth & Kinross
G-CLII	406FEB	Robinson R44 Raven II	12281	DM McGarrity, (Newtownabbey, County Antrim)
G-CLPX	407060	Grob G.103C Twin III Acro (built by Burkhart Grob Luft-und-Raumfahrt GmbH and Co. KG)	34128	The Windrushers Gliding Club Ltd, Bicester, Oxfordshire
G-CLRH	406FC4	Glasflugel 304S Shark (built by HPH spol s.r.o.)	053-MS	E Dillon and AC Broadbridge, Husbands Bosworth, Leicestershire
G-CLRV	407056	Grob G.103 Twin Astir (built by Grob-Werke GmbH and Co. KG)	3106	MA Pettican, Bicester, Oxfordshire
G-CLRZ	40705A	Rolladen-Schneider LS1-F	345	MA Pettican, Trustee of KC Group, Bicester, Oxfordshire
G-CLSJ	406ED7	Glasflugel 304S Shark (built by HPH spol s.r.o.)	055-MS	CM Lewis, Gransden Lodge, Cambridgeshire
G-DLOE	406CFC	Schleicher ASG-29E (officially registered as an ASW-27-18E)	29694	JE Gaffield, Lasham, Hampshire
G-EROE	406F93	Avro 504K Replica (built by AeroHistoric)	OLA-002	EA Verdon-Roe, (Sherborne, Dorset)
G-ETKT	407042	Robinson R44 Clipper II	13940	Heli Air Ltd, Wellesbourne Mountford, Warwickshire
G-EZPA	406FD7	Airbus A320-214	6970	easyJet Airline Company Ltd, London Luton, Bedfordshire (NB)
G-EZPB	406FD8	Airbus A320-214	6977	easyJet Airline Company Ltd, London Luton, Bedfordshire (NB)
G-EZPC	406FD9	Airbus A320-214	6981	easyJet Airline Company Ltd, London Luton, Bedfordshire (NB)
G-FICH	406FA3	Guimbal Cabri G2	1131	Helicentre Aviation Ltd, Leicester, Leicestershire
G-GMOX	40705D	Cessna 152	15282152	Staverton Flying School @ Skypark Ltd, Gloucestershire
G-GSFS	40705C	Cessna 152	15284130	Staverton Flying School @ Skypark Ltd, Gloucestershire
G-HSDL	407047	Westland SA341B Gazelle AH.1	1227	MW Helicopters Ltd, Stapleford Tawney, Essex
G-IISC	406FB7	Extra EA.300/SC	SC058	DEH Nichols, Trustee of G-IISC Group, White Waltham, Berkshire
G-IPPL	407052	Reims Cessna F172M	1348	Cooperatief Air Waterland UA, Lelystad, Netherlands
G-ITAA	407034	Reims Cessna F172P	2233	G Martinelli, Milano Bresso, Italy
G-JBRD	406E01	Mooney M.20K	25-1001	RJ Doughton, Dunkeswell, Devon
G-JEMS	406FB8	UltraMagic S-90	90/143	JE, LV and DJ McDonald, (Maidstone, Kent)
G-JZHF	406F87	Boeing 737-8K2	28378	Jet2.com Ltd, Leeds Bradford, West Yorkshire
G-KSST	406F65	AgustaWestland AW169	69014	Specialist Aviation Services Ltd, (for Kent, Surrey & Sussex Air Ambulance, Marden, Kent)
G-NDIA	404997	Robinson R22 Beta II	3453	EBG (Helicopters) Ltd and Altitude Consultants Ltd, Redhill, Surrey
G-NJOY	40705F	Piper PA-28-181 Archer II	28-8290049	MJ Groves, Turweston, Buckinghamshire
G-NKEL	407023	Robinson R44 Raven II	10488	I Leprotti SRL, (Abbiategrosso, Milan, Italy)
G-OCDO	407001	Guimbal Cabri G2	1133	Vantage Aviation Ltd, Blue Barn Farm, Southwick, Wiltshire
G-OXIV	407044	Van's RV-14	LAA 393-15383	MAN Newall, (Harrogate, North Yorkshire)
G-RDDM	406FB6	Cessna 182T Skylane (built by Textron Aviation Inc)	18282387	Optum Global Ltd, Robin Hood Airport Doncaster Sheffield, South Yorkshire
G-RRIA	407033	Raytheon RB390 Premier 1 (built by Hawker Beechcraft Corporation)	RB-228	Riana Investments BV, Coventry, Warwickshire

G-SPVI	406FCF	SOCATA TB20 Trinidad GT	2168	SW Parker, Trustee of Teegee Group, Nottingham City Airport, Nottinghamshire
G-SSXL	40704D	Just Aircraft SuperSTOL XL	LAA 397-15385	PT Price, (Ashton-in-Makerfield, Greater Manchester)
G-TCDL	406F0A	Airbus A321-211	6968	Thomas Cook Airlines Ltd, Manchester
G-TCDM	406F0B	Airbus A321-211	7003	Thomas Cook Airlines Ltd, Manchester
G-TCMC	406FEE	Embraer Legacy 650	14501165	London Executive Aviation Ltd, London Stansted, Essex
G-TSDC	406FCD	Aquila AT01-100A	AT01-100A-332	Tayside Aviation Ltd, Dundee
G-TSDE	406FCC	Aquila AT01-100A	AT01-100A-333	Tayside Aviation Ltd, Dundee
G-UKCS	407009	Piper PA-31-310 Navajo	31-7400984	2 Excel Aviation Ltd, Sywell, Northamptonshire
G-USCO	401011	Hughes 369C	1140377	GR Colquhoun, (Lillingington, Somerset)
G-VYGM	406E9F	Airbus A330-243MRTT	1601	AirTanker Ltd, RAF Brize Norton, Oxfordshire
G-WADF	407061	Air Creation Tanarg/BioniX 13 912S(1)	BMAA/HB/683	WO Fogden, (Brightwell Baldwin, Oxfordshire)
G-WPNS	4009B4	Britten-Norman BN-2T-4S Defender 4000	4011	Britten-Norman Ltd, Lee-on-Solent, Hampshire
G-XLEK	406EC9	Airbus A380-841	194	British Airways PLC, London Heathrow, Middlesex
G-ZAST	407026	Christen A-1 Husky	1155	S Zanone, Biella-Cerrione, Italy
El-FJC	4CA601	Boeing 737-81D	39412	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FJE	4CA5F7	Boeing 737-8JP	39420	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FJF	4CA5F8	Boeing 737-86N	36814	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FJG	4CA60D	Boeing 737-8JP	37818	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FJH	4CA5AC	Boeing 737-8JP	42071	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FJI	4CA60E	Boeing 737-8JP	37817	Norwegian Air International Ltd, Oslo/Gardermoen, Norway (NB)
El-FMM	TBA	Boeing 737-86N	29889	GAAM China No.1 Ltd, (for Yakutia Airlines, Yakutsk, Russia)
El-FMT	4CA5C4	Airbus A319-112	2113	Aercap Ireland Ltd, (leased to Volotea, Barcelona, Spain)
El-FNB	TBA	Embraer 170	17000093	SMBC Aviation Capital Ireland Leasing 3 Ltd, (stored at Exeter, Devon)
El-FOG	4CA5EC	Boeing 737-8AS	44711	Ryanair Ltd, Dublin (NB)
El-FOJ	4CA5EF	Boeing 737-8AS	44722	Ryanair Ltd, Dublin (NB)
El-FOK	4CA5F0	Boeing 737-8AS	44719	Ryanair Ltd, Dublin (NB)
El-FOL	4CA5F1	Boeing 737-8AS	61580	Ryanair Ltd, Dublin (NB)
El-FOM	4CA5F2	Boeing 737-8AS	44720	Ryanair Ltd, Dublin (NB)
El-FON	4CA5F3	Boeing 737-8AS	44721	Ryanair Ltd, Dublin (NB)
El-FOO	4CA5F4	Boeing 737-8AS	44724	Ryanair Ltd, Dublin (NB)
El-FOP	4CA5F5	Boeing 737-8AS	44723	Ryanair Ltd, Dublin (NB)
El-FOR	4CA5F6	Boeing 737-8AS	44718	Ryanair Ltd, Dublin (NB)
El-LNI	4CA508	Boeing 787-9	37307	Torskef Jorden Leasing Ltd, (leased to Norwegian Air International Ltd, Oslo/Gardermoen, Norway)
M-ISTY	43EA88	Gulfstream G280 (built by Israel Aerospace Industries)	2085	Hampshire Aviation LLP, Bournemouth, Dorset
M-MAXX	43EA87	Bombardier Global 6000	9678	Max Smart Development Ltd, TBA
M-RBIG	43EA85	Learjet 45	45-280	Volantair LP Inc, Belfast International, Northern Ireland
2-GJSA	TBA	ATR 42-500	571	Flair Aviation GmbH, (stored at Mönchengaldbach, Germany)
2-GJSB	TBA	ATR 42-500	576	Flair Aviation GmbH, (stored at Mönchengaldbach, Germany)



**Airbus A320-214 G-EZPC (c/n 6981) lifts off from Edinburgh Airport on March 7. It is one of three A320s registered to easyJet this month.**  
AirTeamImages.com/Ray McFadyen



2-JFJC	43EB60	Bombardier Challenger 601-3A	5023	Volare Aviation Ltd, Biggin Hill, Greater London
2-MELO	TBA	Boeing 767-346	24498	Aero Maximum Inc (stored at Rayong/U-Taphao International, Thailand)
2-PAOL	TBA	Airbus A330-203	900	Aercap Capital Ireland Ltd, Amsterdam/Schiphol (for Shaheen Air as AP-BML)
2-TBXI	TBA	Airbus A320-232	0551	International Lease Finance Corporation (stored at Phoenix Goodyear, Arizona)
2-TBXX	TBA	Boeing 737-71B	29366	International Lease Finance Corporation (for Southwest Airlines as N7845A)

## CANCELLATIONS

REG'N	TYPE	C/N	REASON
G-AWXX	Westland Wessex 60 Series 1	WA694	Cancelled by CAA (no UK CoFA since restored to register 29.10.08)
G-BAIK	Reims Cessna F150L	0903	Cancelled by CAA (CoFA expired 18.04.13, stored at Derby, Derbyshire)
G-BERC	SOCATA Rallye 150ST	2858	To France
G-BEVW	SOCATA Rallye 150ST	2928	To Poland
G-BJAV	Gardan GY-80-160 Horizon	28	To France
G-BKBN	SOCATA TB-10 Tobago	287	To Russia
G-BLCW	Evans VP-1	PFA 062-10835	Cancelled as Permanently WFU (overturned on take-off from Priory Farm, Tibenham, Norfolk 02.02.15)
G-BMNL	Piper PA-28-200 Cherokee Arrow II	28R-7535040	To France
G-BMVG	QAC Quikie 1 (modified)	PFA 094-10749	Cancelled by CAA (Permit to Fly expired 01.01.02. Was based in France)
G-BPVM	Cameron V-77	1970	Cancelled as Permanently WFU (CoFA expired 22.04.05)
G-BRVN	Thunder Ax7-77	1614	Cancelled as Permanently WFU (CoFA expired 02.10.14)
G-BTPE	BAe ATP	2012	To Sweden as SE-MHE
G-BVDZ	Taylorcraft BC-12D	9043	Cancelled by CAA (no UK CoFA issued. Rebuild abandoned?)
G-BVJF	Montgomerie-Bensen B.8MR	PFA G/01-1082	Cancelled as Permanently WFU (no Permit to Fly issued. Believed not completed)
G-BWBT	Lindstrand LBL 90A	184	Cancelled as Permanently WFU (CoFA expired 09.04.05)
G-BWWT	Dornier 328-100	3022	To Germany as D-CMHC
G-BZNH	Rans S.6-ES Coyote II	PFA 204-13660	Cancelled by CAA (Permit to Fly expired 23.08.12)
G-CBIU	Cameron Flame-95	10222	To Netherlands
G-CCGE	Robinson R22 Beta II	3453	Re-registered as G-NDIA
G-CECO	Hughes 269C	1140377	Re-registered as G-USCO
G-CELC	Boeing 737-33A	23831	Cancelled as Permanently WFU (flown to Cotswold Airport, Gloucestershire 16.12.14 for parting out and subsequently broken up)
G-CFAU	Cameron Z-105	11136	To Mexico
G-CFWZ	Schleicher ASW-19B	19342	To Poland
G-CGAM	Schleicher ASK-21	21144	Cancelled by CAA (but restored again later in the month)
G-CHLX	Schleicher ASH-25	25134	To France
G-CIFW	Beech B200 King Air	BB-1833	To USA as N375JP
G-CILF	Axel Gliders Axel	ZP-AXL-002	To Germany
G-CIPC	P & M Quik GT450 Lite	8722	To Australia
G-CIPK	P & M QuikR	8725	To Australia
G-CWVY	Mainair Pegasus Quik	7984	Cancelled by CAA (crashed at Old Park Farm, Margam, West Glamorgan 25.10.15)
G-DBXE	Slingsby T.51 Dart	1509	Cancelled as Permanently WFU (CoFA expired 13.04.12)
G-DDZJ	Grob G.102 Astir CS Jeans	2230	Cancelled by CAA (CoFA expired 02.10.14)
G-DFKH	Schleicher Ka.6CR	6343	Cancelled by CAA (CoFA expired 06.11.12)
G-DNGA	Kubicek BB20	235	To USA as N704U
G-DOCO	Boeing 737-436	25849	To USA (CoFA expired 25.09.15, flown to Southern California Logistics Airport, Victorville, California for storage 03.09.15)
G-DOCW	Boeing 737-436	25856	To USA (CoFA expired 03.02.16, flown to Southern California Logistics Airport, Victorville, California for storage 02.10.15)
G-DOCX	Boeing 737-436	25857	To USA (CoFA expired 28.03.16, flown to Southern California Logistics Airport, Victorville, California for storage 02.10.15)
G-EZAD	Airbus A319-111	2702	To USA as N311NV
G-EZGG	Airbus A319-111	4640	To Switzerland as HB-JYN
G-GMED	Piper PA-42-720 Cheyenne IIIA	42-5501050	To Germany



**Airbus Helicopters AS350B3 Ecureuil G-CIWO (c/n 8191) on the ramp at Denham having just arrived by road. It was registered to Airbus Helicopters UK on February 3.** Brian G Nichols

G-GMPB	Britten-Norman BN-2T-4S Defender 4000	4011	Re-registered as G-WPNS
G-GOBT	Colt 77A	1815	Cancelled as Permanently WFU (CoFA expired 18.03.00)
G-GZRP	Piper PA-42-720 Cheyenne IIIA	42-5501011	To Germany
G-IDRO	Bombardier Global Express XRS	9286	To Luxembourg as LX-AMG
G-JFJC	Canadair Challenger 601-3A	5023	To Guernsey as 2-JFJC
G-JMED	Learjet 35A	35A-671	To Germany
G-KIRC	Pietenpol/Challis Chaffinch	1008	Cancelled by CAA (but restored again two days later)
G-LAFF	Cameron TR-84 S2	11437	To Germany
G-LKTB	Piper PA-28-181 Archer III	2843496	To France
G-MACE	Hughes 369E	0015E	To Poland as SP-MLL
G-MANO	BAe ATP	2006	To Sweden as SE-MAN
G-MAYE	Bell 407	53117	To USA as N407LH
G-MIRM	Stinson HW-75	7040	Re-registered as G-BMSA
G-MYLK	Solar Wings Pegasus Quantum 15	6602	Cancelled by CAA (Permit to Fly expired 24.09.04)
G-NREG	Bombardier Challenger 600	1045	Cancelled by CAA (no UK CoFA issued. Stored at White Waltham, Berkshire 02.16)
G-OKBT	Colt 25A	2301	Cancelled as Permanently WFU (CoFA expired 18.04.03)
G-OUIC	Lindstrand LBL 105A	724	Cancelled as Permanently WFU (CoFA expired 29.05.13)
G-PUPS	Cameron Z-210	11323	To Mexico
G-SHAN	Robinson R44 Clipper II	10617	To USA as N151HM
G-SWIP	Silence Twister	PFA 329-14700	Re-registered as G-RIOT
G-TBTB	Robinson R44 Raven I	1559	To USA as N164SA
G-TERA	Vulcanair P.68 Observer 2	433-29/OB2	To USA as N17ZX
G-VECT	Cessna 560XL Citation Excel	560-5161	To USA as N561HH
G-XMHD	Hawker Hunter T.7	41H-003315	To Jordan
G-ZMED	Learjet 35A	35A-656	To Germany
G-ZSWR	de Havilland DH.89A Dragon Rapide	6853	To Germany
El-AMI	Piper PA-22-108 Colt	22-8835	Cancelled at Owners Request - Removed from Service (donated to Carlow Institute of Technology as an instructional airframe)
El-DVA	Boeing 737-36E	25159	To Panama as HP-1923PST
El-DYS	Boeing 737-8AS	37514	To South Korea as HL8061
El-EJY	Airbus A330-223	970	To Portugal as CS-TRY
El-EYS	Airbus A320-214	2964	To Mexico as XA-NBA
El-EZZ	Raj Hamsa X'Air 582(5)	BMAA/HB/135	To United Kingdom as G-XRAF
El-FKL	Embraer 195	19000067	To Turkey as TC-YAT
El-LNA	Boeing 787-8	35304	To Norway as LN-LNA
El-RHM	Bell 407	53137	To United Kingdom as G-DCDB
El-RUY	Boeing 767-3Q8	29387	To Germany as D-ABUO
El-UNC	Boeing 767-319	29388	To Iceland as TF-ISO
M-AAES	Bombardier Challenger 605	5810	To USA as N5810B
M-ABIX	Airbus A320-232	2108	To India as VT-IDQ
M-ATOS	Dassault Falcon 900LX	244	To USA as N91FE
M-DWSF	Bell 430	49095	To Turkey
M-LUCA	ATR 42-320	291	To Greece as SX-NIK
2-BHKU	Boeing 747-412	27069	Reason not given (stored at Marana-Pinal Air Park, Arizona, USA)
2-MMRH	Boeing 777-2H6	28415	To USA as N318MY
2-RLAF	Airbus A321-211	0677	To Zaire as 9Q-DSB
2-TBXX	Boeing 737-71B	29366	To USA as N7845A

Key: NB – Nominal Base

A place name in brackets relates to the owner's address as where the aircraft is based is unknown.



TALES FROM  
THE LOGBOOK...

# COLD WAR FLASHBACK

MAY 1988



**Peter R Foster** describes the wide variety of military aircraft that could be seen at air bases in the East of England in an average month during the 1980s' period of the Cold War.

**W**hen looking through my logs covering the past 40 years it is noticeable that the number of aircraft types and the variety of locations where they could be seen has changed dramatically.

In 1988 the Cold War was still the world order and Europe was heavily fortified on both sides of the Iron Curtain. This extended to Britain with the US having a huge

**One of the most impressive aircraft to be stationed in Britain during this period of the Cold War was the SR-71A Blackbird. Aircraft 17971 blasts off from RAF Mildenhall on a mission on May 19. All photos Peter R Foster**

presence. There was also the regular round of exercises to keep air forces sharp.

At the time I was living in Brampton in Cambridgeshire, which meant I had plenty of

air bases close by. I was doing shift work so had time during the week to visit the many bases in East Anglia and elsewhere.

The start of the month was very busy and although the initial two events occurred in April, the departures ran into May.

RAF Lakenheath in Suffolk usually hosted the annual United States Air Forces in Europe (USAFE) fast jet competition Excalibur. On Friday, April 29 it did so





One of the more unusual NATO squadron exchanges in the 1980s to be seen in the UK was between the Spanish Air Force's F-4Cs of Ala 12 and 27 Sqn flying the Tornado GR1 from RAF Marham. One of the Phantoms is pictured on approach to the Norfolk base on May 3.

again for the 1988 edition with the base receiving more than 60 USAF fighter aircraft from 12 squadrons.

Launching from their home bases, teams of four aircraft, including F-111Fs from Lakenheath, flew through the Spadeadam electronic warfare range in northern England before recovering to Lakenheath for the debrief. An F-16C Fighting Falcon from the 313th Tactical Fighter Squadron (TFS) of the 50th Tactical Fighter Wing (TFW) at Hahn AB, West Germany, mistakenly landed at nearby RAF Mildenhall and the team was disqualified as a result. The aircraft all night-stopped at Lakenheath with some leaving for their home bases on the Saturday and the rest on Monday.

I made an early-morning visit on Sunday, May 1. They were parked on the southeastern side of the base in the usual area used for visiting aircraft – what a sight it was to see so many USAF fighters together.

It was only a brief stop as I was en route to RAF Waddington, Lincolnshire, for a photocall to raise funds for the restoration work on the Airmens' Chapel in Lincoln Cathedral. There were 35 aircraft present, including types from six nations. It was primarily a static event although a Royal Danish Air Force Sk.35XD Draken gave a short display and an RAF Hercules C3P performed a flyby while on a test flight from Marshall Aerospace in Cambridge.

An Air Force Reserve KC-135E Stratotanker from the 336th Air Refueling Squadron at March AFB, California, was persuaded to undertake a practice diversion while on a mission from Mildenhall. It carried out a low flypast down the runway, wheels up and boom lowered. At the time there were no flying units based at Waddington though four Nimrod AEW.3s from the failed project were in storage there.

## SPANISH PHANTOM EXCHANGE

On the 3rd I made a short visit to RAF Marham, Norfolk, where Spanish Air Force F-4C Phantom IIs from Ala 12 at Torrejón Air Base were undertaking a NATO exchange with the Tornado GR1s of 27 Sqn. I also logged a visiting RAF Germany (RAFG) GR1 from 15 Sqn. At the time the base was also home to GR1s of 617 Sqn and Victor tankers of 55 Sqn.

The following day I headed up to a wet and windy Lincolnshire to see the eight CF-188 Hornets from the 1st Canadian Air Group at Baden-Soellingen in West Germany that were also undertaking an exchange with the Tornado F3s of 229 Operational Conversion Unit (OCU)/65 (Reserve) Squadron at RAF Coningsby. The base was also home to other F3 units – 5, 29 and the F3 Operational Evaluation Unit – as well as of course the Battle of Britain Memorial Flight.

By May 1988 the RAF only operated a single Victor squadron. This was 55 Sqn based at Marham where XH671 is seen landing on the author's visit to see the Spanish Phantoms.







A line-up of Canadian Hornets at RAF Coningsby while on a squadron exchange with 229 OCU/65(R) Sqn.

The exchange ran from April 25 for ten days and when I visited the weather was poor. All eight jets were parked outside on the main aircraft servicing pan and could be easily seen. Also visiting that day was a Canadian Forces CT-133 Silver Star from the same unit. While at Coningsby, three Belgian Air Force F-16s arrived including FA-49 in 45th anniversary markings for 349 Sqn. These jets night-stopped and undertook a photo sortie with a Spitfire of the Battle of Britain Memorial Flight the following day.

I returned home via RAF Cottesmore in Rutland and saw numerous RAF, Italian and West German air forces' Tornados assigned to the Tri-National Tornado Training Establishment (TTTE) that was resident at the base. Visiting was a West German Air Force Tornado, 44+33 from JaBoG 31

at Nörvenich and a West German Navy example, 43+75 from MFG 1 at Jagel.

My spotting did not always entail charging around the UK as RAF Brampton (which didn't have a runway) received a fair number of rotary visitors. On May 13 Sea King HC4 ZF115 from the Royal Aircraft Establishment visited and was a new sighting for me.

On Saturday, May 14, I was on a group tour of the British Aerospace plant at Warton, Lancashire. At the time, Tornado ADV construction was at its mid-point, while the last few BAC.167 Strikemasters were being built. Of the four noted, three were acquired by the air force of Ecuador and the other Botswana. Sultan of Oman Air Force (SOAF) Jaguars were also undergoing a mid-life upgrade and three were present. Photography inside the plant

was not permitted although test flying was often undertaken on a Saturday morning, so if you were lucky something could be photographed outside.

## LOCAL BASE

On May 17, I saw an F-4G and F-16C from the 81stTFS/52nd TFW at Spangdahlem AB in West Germany at my local base of RAF Alconbury.

This US installation was the nearest base to my home, though RAF Wyton with its Canberra squadrons and Nimrod R1s of 51 Sqn was only a few miles away.

Alconbury was always of interest and I would often nip up there for a few hours. The base regularly hosted USAF fighters to fly dissimilar air combat training (DACT) with the F-5E Tiger IIs of the 527th

**Tornado F.3 ZE760 'CF' of 5 Squadron landing at RAF Coningsby on May 4. The squadron had only stood up on the F3 on January 1 that year and received this factory-fresh aircraft in April.**







Aggressor Squadron. During May, F-15C Eagles of the 57th Fighter Interceptor Squadron from Keflavík, Iceland, were a continuous presence having arrived on April 28. The small detachment, which varied between two and three Eagles, had a number of aircraft swap-overs during the month.

At the time the 509th TFS was moving in with A-10A Thunderbolt IIs and although initially operating with their former 'WR' tail codes, they were gradually being rebranded with the 'AR' ones.

The resident 17th Reconnaissance Wing (RW) and its TR-1As carried out a lot of flying. To help with crew training, a two-seat TR-1B was sometimes detached from the 9th RW at Beale AFB, California. Aircraft 01064 was present undertaking such duties in May.

On the 18th I headed to Cottesmore as I had heard that eight Tornados and a pair of Dornier Do 28s from JaBoG 34 at

**Among the visiting aircraft to RAF Alconbury in May 1988 was this F-4G of the 81st TFS.**

Memmingen AB had arrived and would be night-stopping. They were there for the end of a TTTE course on which the final crews of the initial Tornado complement of JaBoG 34 were graduating. The presence of West German and Italian crews receiving training led to many visiting aircraft from those countries with the end of the course particularly busy with fellow aircrew flying in to attend the graduations.

By the time I arrived a further Tornado and Do 28 of JaBoG 31 from Nörvenich plus an RF-4E from AKG 52 at Leck were present and then a 60 Sqn Andover CC2 came in.

On my way back down the A1 I called in at RAF Wittering, Cambridgeshire, to catch up on Harrier GR5 deliveries. I recorded ZD324/B and ZD326/C of 233 OCU which had both recently been delivered. Visiting were two Tornado GR1s from RAFG – one

each from 16 Sqn and 20 Sqn and a Fleet Air Arm Sea King HC4.

I visited RAF Mildenhall on May 19 where I recorded three KC-135As, three KC-135Es, two KC-135Rs, an RC-135W and three KC-10As. There was also a single C-5B Galaxy, three C-141B Starlifters and an Army Air Corps Gazelle AH1, XX393. While there SR-71A Blackbird 17971 made for an impressive sight taking off.

I then went to RAF Northolt, on the western outskirts of London, where there was a Belgian Army Britten-Norman BN.2A Islander and French Navy Piper PA-31 Navajo present.

## BUSY BREWER B-52s

On Saturday, May 21, I managed a short stop at RAF Fairford, Gloucestershire, en route to a family event, to catch seven B-52G Stratofortress bombers of the 42nd Bomb Wing (BW) at Loring AFB, Maine undertaking a Busy Brewer detachment.

**A two-seat TR-1B would often be detached at Alconbury to help with training for 17th RW pilots as the unit did not have its own trainer aircraft. This example, 01064, was present during May.**







The big US bomber was a regular visitor during this period with a further detachment from the 2nd BW at Barksdale AFB, Louisiana, the following month.

On the way back home I popped into Mildenhall to photograph C-130H Hercules 84-0212 of the 166th Tactical Air Group/Delaware Air National Guard (ANG). There was also a pair of C-5As present along with a single C-141B.

On Sunday morning I headed down to RAF Bentwaters, Suffolk. It was a lovely sunny day and parked in one of the hardened aircraft shelter areas were two A-10A Thunderbolt IIs from the 104th TFS/Maryland ANG. These two aircraft, 78-0682 and 79-0088, were from the Coronet Moat deployment to Hohn in West Germany.

**May saw the final Tornado crews of the initial complement for JaBoG 34 graduate from the Tri-National Tornado Establishment at RAF Cottesmore. Ten aircraft from the unit attended along with a number of other visitors, such as this Tornado 44+14 from JaBoG 31 shown on finals to Cottesmore.**

The latter aircraft had visited nearby RAF Woodbridge on May 17 where it had become unserviceable. It was later transferred to Bentwaters and 78-0682 had arrived on May 20 to accompany it home.

The other ten aircraft on the deployment routed Hohn to Lajes in the Azores that same day. The pair at Bentwaters eventually departed on May 31. Also visiting Bentwaters were a pair of Italian Air Force F-104S Starfighters, MM6794/5-12 and

MM6847/5-14 from 5° Stormo at Rimini.

A USAF C-130B, 58-0725, of the 167th TAG/West Virginia ANG was also noted visiting Woodbridge. There were a further pair, MM6762/9-42 and MM6708/9-51, from 9° Stormo at Grazzanise parked by the control tower at RAF Wattisham, Suffolk. The base was home to the Phantoms of 56 and 74 Sqns at the time.

The last weekend of May had a bank holiday Monday and was when RAF Mildenhall traditionally held its annual air fete. This weekend was also a popular time for European air forces to hold their airshows.

I spent Friday, May 27, sitting on the mound at Mildenhall with a couple of dozen fellow enthusiasts watching the inbound ►

**A lovely Sunday morning at RAF Bentwaters on May 22. A Maryland ANG A-10A from Coronet Moat and an Italian Air Force Starfighter in the background bask in the sun.**







Eagles from the 57th FIS from Keflavík, Iceland, was present throughout May to undertake dissimilar air combat training with F-5s from the 527th Aggressor Squadron.

aircraft. The weather was mixed, but the show content was good and my notes record some 88 arrivals. Over at Lakenheath were three VH-3D Sea Kings of the US Marine Corps' HMX-1 that had been off-loaded a

couple of days earlier from a C-5B Galaxy. After re-assembly and test flying, these helicopters departed for Northolt on May 31 for the visit a few days later by US President Ronald Reagan to London.

However, my plans for that weekend were further afield and I headed off to Europe that night for the airshows at Beauvechain in Belgium and Toul-Rosières in France. **AN**

An 11 Sqn Lightning makes a flypast at RAF Mildenhall on Friday, May 27. The jet, together with more than 80 aircraft, arrived that day for the annual air fete.



## The next issue will be on sale on May 19, 2016\*

\*UK scheduled on sale date. Please note that the overseas deliveries are likely to be after this date.

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